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CASSELL'S

SCIENCE AND ART OF NURSING

"THE LADY WITH THE LAMP" (*p.* 12).
(From the Painting by Henrietta Rae, Mrs. Ernest Normand.)

CASSELL'S
SCIENCE AND ART OF NURSING

A GUIDE TO THE VARIOUS BRANCHES OF NURSING, THEORETICAL AND PRACTICAL

BY

MEDICAL AND NURSING AUTHORITIES

ILLUSTRATED WITH COLOURED AND BLACK-AND-WHITE PLATES AND FIGURES IN THE TEXT

IN FOUR VOLUMES

VOL. I

LONDON
THE WAVERLEY BOOK COMPANY, LIMITED
7, 8 & 9 OLD BAILEY, E.C.

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PREFACE

LITTLE need be said by way of introducing THE SCIENCE AND ART OF NURSING to the Profession to which it makes its appeal. It may be described in general terms as a work for Nurses by Nurses and by medical men who are engaged in the teaching and training of Nurses. The marvellous development of the Nursing Profession in these islands, and in the British Empire generally, is one of the most arresting economic and social phenomena of the last half-century, and it has been attended by the production of an extensive literature. Other Sciences and Arts have their encyclopædias, and an encyclopædia of Nursing, which is both a Science and an Art, has long been overdue. That want the present work is designed to supply. Though not cast in the encyclopædic form—for reasons too obvious to need recital, it claims to be encyclopædic in its comprehensiveness. It treats compendiously of the many branches and phases of Nursing, regarded successively as a Profession, as a Science, and as an Art, and finally it deals with that important branch of the movement which is concerned with Midwifery and Monthly Nursing.

That on some points there should be differences of view among Nurses is not surprising, is but a symptom, indeed, of rapid growth and vigorous life, and of a noble zeal for the honour and advancement of a Profession of which all

*

its members alike do well to be proud. As the list of contributors shows, the note of The Science and Art of Nursing is catholicity. It identifies itself with no one school of thought, but assumes that a probably not distant future will witness a reconciliation of antinomies which are not incompatible with essential oneness of aim and aspiration. The appearance of the present work, seeking as it does to represent the whole Nursing world, and to make easily accessible knowledge which can only otherwise be gleaned from a multitude of scattered books, may be regarded as one sign of the final unification of a great Profession.

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SCIENCE AND ART OF NURSING

BOOK I.—THE PROFESSION OF NURSING

CHAPTER I

NURSING, PAST AND PRESENT

By Sarah A. Tooley

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Nursing a woman's vocation.—There is a romantic fascination about a calling which involves self-sacrifice and draws forth the qualities of service, and on these grounds sick-nursing appeals most strongly to women. A law of nature appears to have reserved nursing as the most characteristic of feminine occupations. As such it has undoubtedly suffered in lack of status and dignity, and one of the most remarkable social movements of the past half-century has been the struggle to elevate this important branch of human work into a trained profession.

Of such preponderating importance is this struggle that many who are engaged in it seem scarcely to realise that nursing has a history. One might as well contend that surgery had no history because the early practitioners knew not the methods of Lister and Treves. The toilers of the Stone Age command admiration because they achieved so much with few and imperfect implements. Like the Vicar of Wakefield's son Moses, I have great regard for the "ancients." There would have been no "moderns" without them.

Nursing originally an act of devotion.—In the remote past the nursing of the sick was chiefly an act of religious devotion, and the idea of self-sacrifice, even of self-immolation, was at the root of the work. A notable example of the religious nursing enthusiast is found in Saint Paula, the Roman patrician lady who devoted herself and her wealth to the service of the sick. The pagan city had no sympathy with this Christian effort, and Paula left Rome for Palestine, and at Bethlehem of Judæa, the cradle of the new faith, established in the fourth century a little hospital where the sick poor of the district, and the pilgrims overtaken by disease while sojourning in the Holy Land, were cared for by the devoted women whom she gathered around her. Later she built on the road to Jerusalem a hospice for sick pilgrims, and a monastery for her master, St. Jerome. Paula and her women were not cloistered nuns, but they lived an austere religious life devoted to good works; and in this little band we find the germ of the Nursing Sisterhoods which flourished in the succeeding centuries. Paula would quickly have been discomfited by the modern nursing probationer if asked for a definition of "antisepsis," but we are told that she was "piteous to them that were sick," that she "laid their pillows aright," and "rubbed their feet and boiled water to wash them"; and her service was done unto God.

For the first fifteen centuries of the Christian era the nursing of the sick continued to be more or less a religious act. St. Paul, though he enjoined silence upon women in public assemblies, discerned their fitness for ministration, and set apart deaconesses to care for the sick and distressed, and so we find in the early Christian Church the prototype of the modern district nurse. Religious zeal caused hospices for the sick to spring up along the pilgrim routes to Palestine; religious zeal induced high-born women to nurse in the hospices; and religious zeal gave the first great impetus to the medical and nursing professions. The first medical school was founded at the monastery of Monte Casino, and the first school for nurses at Rupertsberg by the famous abbess St. Hildegarde. The Knights Templars and the Knights Hospitallers included in their rules the study of medicine and the care of the sick, and the Hospitallers made a new departure by engaging women as nurses.

The earliest monastic institutions provided infirmaries for the sick, where they were cared for by the brethren and sisters. As the homeless wayfarer found supper and a bed of straw before the fire in the refectory of the monastery, so the sick were nursed in the conventual hospital or infirmary; and the common-room, where the casual cases of the countryside came for treatment, was the prototype of the out-patient department of the modern hospital.

The religious houses served also as nursing homes—to use modern parlance—for the rich, and thither came great nobles and royal sufferers, attracted chiefly, no doubt, by the miraculous relics which these houses boasted, but obtaining a cure under the medical skill and good nursing of the brethren and sisters, together with the simple life enjoined by the community, and the salubrious situation of the abbey or monastery.

The zeal of notable abbesses was directed towards the healing of the sick, and the nuns under their rule were trained in nursing and in the compounding of simple remedies. Many of these devout women were actuated by a spirit of human compassion, especially in the earlier days of the Church, but as the belief in pains and penances as a means of salvation grew, the nursing of the sick was undertaken as a deed of mortification, and the devotees thought more about their own souls than of the bodies of their patients. Their ultimate aim was not so much the cure of disease as the winning of salvation by undertaking a loathsome and revolting task. The Lazarus at the gate of the monastic infirmary was an object whereby the saint might obtain the favour of Heaven. The more loathsome his wounds the greater the glory of those who ministered to his sufferings.

The Hôtels-Dieu.—A further development of nursing came with the establishment of general hospitals, which, still continuing the idea of holy work, were named Hôtels-Dieu. The first was established at Lyons in 560 A.D., and a hundred years later another was founded at Paris. Though differing from the pilgrims' hospices and the monastic infirmaries, the Hôtels-Dieu were under the influence of the Church. The nursing staffs of these institutions were composed of *hospitalières*, or nursing sisters, who did their work chiefly from motives of piety, but were not nuns. Their training or novitiate was for one year. They grew into an important body, and Pope Innocent IV., thinking it desirable that they should be given a recognised position, placed them under the Augustine rule.

The *hospitalières* pervaded Christendom, and for five hundred years were the only organised nursing sisterhood. They were probably the earliest nurses in this country, for at the dissolution of the monasteries our oldest hospital, St. Bartholomew's, founded by the pious Rahere in 1123, was staffed by lay brethren and sisters under the Augustine rule. Other nursing sisterhoods sprang up, like the Grey Sisters, who became a vocation apart, and the Sisters of St. Elizabeth. In the Netherlands the *béguines* became a great organisation, and had a house with six hundred nursing sisters at Ghent. They also nursed the ancient hospital of St. John, at Bruges.

Effect upon nursing of the Reformation.—Before the Reformation there had grown up in this country a hospital system analogous to the present, with physicians and surgeons, and a nursing staff of sisters and novitiates, or probationers, trained under a Superior, according to the knowledge of the day, living within the precincts of the conventual infirmaries, and subject to a strict code of rules. Lay brethren, skilled in the care of the sick, also formed part of the staff. With the dissolution of the monasteries (A.D. 1525 to 1540) the infirmaries were swept away, and the nursing brethren and sisters took refuge abroad. Great was the social upheaval. For a brief period London was without hospitals. The sick died in their hovels, or begged from door to door exhibiting their wounds.

Nursing becomes a lay avocation.—Then followed the foundation of nursing as a strictly lay occupation. The old royal hospitals of St. Bartholomew and St. Thomas were re-opened as general hospitals, and Bethlem royal hospital was set apart for lunatics. These institutions were placed under the control of lay governors, and were nursed by hired women under the supervision of a Matron. In the case of Bethlem there were male and female keepers. Other institutions for the care of the sick sprang up as the result of public enterprise or private philanthropy, of which Guy's Hospital, founded by Thomas Guy in 1724, is a notable example. In course of time the present hospital system spread throughout the country, and replaced and absorbed the old religious foundations. Henceforth nursing became a lay avocation instead of a religious vocation.

The rules for nurses attached to the great hospitals were at first almost as strict as those which had governed the religious brethren and sisters, but there was no standard of training and efficiency, and it would appear that, when the pious motive which had induced well-born women to nurse the sick was removed, the work fell into the hands of the coarse and ignorant, and gradually nursing sank into that abyss of incompetency and bad repute from which our early reformers sought to rescue it.

Sisters of St. Vincent de Paul.—Meantime, on the Continent, the *hospitalières*, *béguines*, and the different religious sisterhoods continued their work. At the beginning of the seventeenth century an important new organisation was founded by St. Vincent de Paul, assisted by many noble ladies of France, and particularly by Madame le Gras, who became the first Mother-General of the Sisters of Charity. This remarkable organisation spread throughout the civilised world, and has established numberless hospitals and homes for the sick and some two thousand houses as centres for its sisters. It marks the transition between nursing as a religious vocation and as a lay profession.

The Sisters of St. Vincent de Paul were to be in the world though not of it. Religious devotion was inculcated by the founder, but not conventual seclusion. The sisters were sent forth into the world to minister to the needs of the sick and helpless. "Servants of the sick poor" became the most cherished designation of the community. There is not a branch of modern nursing of which they were not in a measure the initiators. They nursed in hospitals, penitentiaries, prisons, and even on the slave-galleys ; they tended the sick poor in their own homes, were present on the battlefield, and nursed in military and naval hospitals, and in plague-stricken districts. In such estimation were their services held during the Reign of Terror in France, that the Consular Government established them as a sisterhood by special decree, when every other religious institution was condemned. When the first faint dawn of our own modern nursing movement began in the middle of the nineteenth century, there were some twelve thousand Sisters of Charity at work in the organisations of St. Vincent de Paul.

Our reformers were mortified, when they travelled abroad, at finding the superior provision made for the nursing of the sick as compared with that which prevailed in Protestant England. As early as 1776, Howard, the philanthropist, wrote in glowing terms of the work of the Sisters of the Hospital of St. John at Bruges. Dr. Gooch, a distinguished physician, while touring in France and Belgium about 1825, was much interested in the work of the Sisters of Charity, and on his return called upon "all good Christians to join and found an order of women like the Sisters of Charity." He ventilated the subject in a series of letters published in the "Correspondence of Robert Southey," and his friend the poet was deeply interested in the matter. Elizabeth Fry, and later Mrs. Jameson, the convincing author of "The Communion of Labour," were also favourably struck, while travelling abroad, with the organisations of nursing sisters.

The Kaiserswerth Deaconesses' Institution.—In 1840 Mrs. Fry visited Düsseldorf-on-the-Rhine, and there found the germ of the now world-famous Kaiserswerth Deaconesses' Institution, which was fostered by Pastor Fliedner, a poor Lutheran clergyman, and his devoted wife. The institution, originally started as a humble shelter for homeless women discharged from prison, had in 1836 been developed by Pastor and Madame Fliedner into a hospital for the sick poor and a training school for Protestant nurses. Kaiserswerth was the first training school for nurses on modern lines. There Florence Nightingale herself, and Agnes Jones, and Florence Lees (Mrs. Dacre Craven) received their early training, and for some time it remained the chief training home for Protestant nurses.

The Institution of Nursing Sisters.—Inspired by what she had seen at Kaiserswerth, Elizabeth Fry, two months after her return to London, started (July, 1840) a "Society of Sisters of Charity," to visit and attend the sick. The Dowager Queen Adelaide became patroness of the society, and Dr. Blomfield, the Bishop of London, gave his support to the movement. It is a little singular that the Quakeress founder should have been reminded by Queen Adelaide that the title of her new society had a popish sound and might be displeasing to the Archbishop. Accordingly, on the recommendation of the Queen-Dowager, Mrs. Fry changed the title to the "Institution of Nursing Sisters." A home for the nurses was first established at Raven Row, Whitechapel, under charge of a lady superintendent. The probationers were sent for a period of training to the London Hospital and Guy's Hospital, and later to other metropolitan hospitals. Upon being received as sisters they were bound by strict rules and regulations. They wore an outdoor uniform consisting of black bonnets with long veils, and gowns of Quaker grey. They received a modest salary, and their duty was to attend the sick poor in their own homes if required, and to nurse in hospitals and private families. The affairs of the society were managed by a committee of ladies, in which the Quaker element predominated.

On the death of Mrs. Fry, Lady Inglis became president. After several migrations the institution was finally established in Devonshire Square, Bishopsgate, and there it still continues its work and keeps a staff of some hundred nurses, who now receive the modern three years' course of hospital training, instead of the three months' deemed sufficient for the early probationers.

To Elizabeth Fry, therefore, belongs the credit of having made the first organised effort to train respectable women as sick-nurses, and her Institution of Nursing Sisters was the first started in this country, and for nearly seven years it remained the only organisation for training sick-nurses.

Anglican Sisterhoods.—The next step in the history of modern nursing was the establishment of Anglican Sisterhoods, which came in on the wave of the Tractarian movement. Ladies of education were filled with a religious enthusiasm to devote themselves to the care of the sick and the destitute. The first and most important of these institutions was the **St. John's House Sisterhood**, founded in 1847, at 36, Fitzroy Square, in the St. Pancras district of St. John the Evangelist, from which it took its name of St. John's House. Dr. Blomfield, the Bishop of London, was its first president, and the office has since been filled by successive Bishops of London. No person not a member of the Established Church of England was admissible to fill any office in the institution. The object was to train nurses for hospitals, families, and the poor. There was a suggestion of mediævalism in the organisation of the Sisterhood. The head of the House was the Master, who must be in priest's orders; next came the Lady Superintendent (called later the Sister Superior), the sisters, nurses, and probationers. The sisters and nurses were received into the community at special religious services under the auspices of bishops and distinguished clergy. The sisters on their induction received a Latin cross with the badge of the institution, and the nurses a medal with a similar device. The probationers were sent for six months' training to Westminster and others of the London hospitals, and lived, subject to strict rules, under the control of the Master and Sisterhood.

A most important expansion of the work of St. John's House took place in 1856, when the nursing of King's College Hospital was placed under the charge of the Sisterhood. Three eminent physicians of King's —Sir William Bowman, Dr. Todd, and Dr. Arthur Farre—had been among the initiators of St. John's House. They deplored the condition into which nursing in hospitals had fallen by being in the hands of uneducated women, often of the lowest type, and advised the authorities to make a new start at King's College Hospital. Accordingly, the old staff was cleared out, not without some dramatic incidents on the part of the

Sairey Gamps and Betsey Prigs who stood bonneted and shawled in the hall when the sisters and nurses of St. John's House took possession. I cannot here follow in detail the long connection of the St. John's Sisterhood with King's College Hospital. It lasted for twenty-seven years, until 1883, when the hospital resolved to have a nursing staff as an integral part of the institution. Miss Katharine Monk was appointed Sister Matron, and with wonderful tact and efficiency reorganised the nursing on the modern plan and founded the Training School.

To King's College Hospital and St. John's House belongs, therefore, the honour of having made the first attempt to use the wards of a hospital for the training of a superior class of nurse. In 1856, Florence Nightingale, fresh from the Crimea, visited King's College Hospital, and expressed delight at the changes effected by the new system. One can imagine the pleasure and pride of the nurses as they beheld the heroine of the Crimea walk through their wards. Miss Mary Jones, a dear friend of Miss Nightingale's, was then the Superior of St. John's House.

At subsequent periods the St. John's Sisters undertook the nursing charge of the Galignani Hospital in Paris, the Charing Cross Hospital, and the Children's Hospital at Nottingham, accomplishing in all cases most important work in raising the tone of nursing. They were now (1856) established in commodious premises in Norfolk Street, Strand. They had their own beautiful little chapel, where the admission services took place and daily worship was conducted by the " Master " or chaplain. In the quaint wainscoted hall of the House daily " diets " were dispensed by the sisters to needy convalescents, by an arrangement with the Knights Hospitallers of the Order of St. John of Jerusalem. It was a most interesting revival of mediævalism in the heart of the Strand. Each morning nurses and probationers under the strict surveillance of the sisters wended their way to the various hospitals, where their duties lay, or to tend the sick poor in the slums of the old Clare Market. Others of the nurses were sent to private cases. With the growth of the modern system, by which each hospital trained its own nurses, the work of St. John's House became more restricted. For fifty years it occupied the historic house in Norfolk Street, but owing to the impending demolition of the premises it removed to Queen Square, Bloomsbury. In 1893 the Council of St. John's House placed the nursing under the charge of the Sisterhood of St. Peter's, Mortimer Road, Kilburn.

Other Sisterhoods.—Closely allied with the history of St. John's House are the Nursing Sisters of St. John the Divine, Drayton Gardens, South Kensington. This institution was founded in 1883, after the disruption at St. John's House, when the old Sisterhood left in a body, and under Sister Caroline Lloyd founded a new community. Though now separated from the old foundation, the Sisters of St. John the Divine have a heritage in the fine work accomplished in hospital nursing reform by St. John's House in the days gone by.

The All Saints' Sisterhood also performed important work in promoting the reforms at University College Hospital, of which they had nursing charge for many years until, in 1899, the hospital organised its own nursing staff.

The Anglican Sisterhood of St. Margaret's, East Grinstead, Sussex, founded in 1854, did important pioneer work in nursing amongst the sick poor. The mother house at East Grinstead is now the centre of a large organisation for educational, nursing, and mission work. The Sisters have been called to almost every part of England and to many places abroad, and branches of the community exist in many towns at home and in Ceylon, Canada, and the United States.

Sairey Gamp and Betsey Prig.—A word must here be said of the manner in which noble-spirited Charles Dickens espoused the cause of the sick poor. The subject was vigorously dealt with in *Household Words*, under his editorship, but it was as the creator of the immortal pair, Sairey Gamp and Betsey Prig, that the great novelist most effectively served the cause of nursing reform. "Martin Chuzzlewit" was published in 1844. For ten years Mr. and Mrs. John Bull shook their sides with laughter over the doings of Sairey Gamp, but without any widespread result. The leaven was working, however, and the scandals of the nursing system were discussed in small but enlightened circles. The movement waited for a leader, and the great national crisis of the Crimean War brought that leader to the front.

Florence Nightingale's work.—Florence Nightingale was the woman for the hour. Born in 1820, during the sojourn of her parents in Florence, she took her name from that fair City of Flowers. Some years were passed on the paternal estates at Lea Hurst, Derbyshire, and Embley Park, Hampshire, with occasional visits to London and abroad. Miss Nightingale was reared according to the best traditions of English country life. Her education was far in advance of the average gentlewoman's of her day. She did fine needlework, played, sang, and sketched, but her mind was braced and broadened by the study of Latin, Greek, and mathematics, and the best classical authors, under the guidance of her studious father. She also became versed in modern tongues.

The future heroine of the Crimea grew up with a quick intelligence, a ready mother-wit, a great capacity for work, and the power of controlling and influencing others in a marked degree. From the day when as a little girl she tended the old shepherd's dog "Cap," and cured him of his injuries, Miss Nightingale showed particular aptitude for sick-nursing, and became the good angel of her father's cottagers, and a most helpful daughter at home in time of sickness. The bent of her mind showed itself very decidedly after she grew into womanhood, and, ignoring fashionable social life, she spent much of her time in visiting hospitals at home and abroad. In 1849 she entered the Kaiserswerth Institution to get practical training as a sick-nurse.

No young lady of that period could devote herself to any serious vocation without its being presumed that she had had a disappointment in love, and many little stories went the round to account for Miss Nightingale's absorption in sick-nursing. She was far too attractive and accomplished a girl not to have had suitors, but the call of her life was not matrimonial. She had most sympathetic friends in Mr. Sidney Herbert (afterwards Lord Herbert of Lea) and his beautiful and accomplished wife, and was much interested in the little private hospital and other philanthropic agencies which they started on their estate at Wilton. This friendship bore important fruit.

In 1854, when the Crimean War broke out, Miss Nightingale was acting as the honorary superintendent of a Home for Sick Governesses, now the Hospital for Invalid Gentlewomen, in Harley Street.

Soon the country rang with indignant cries at the sufferings of our wounded soldiery in the East, and the late Sir W. Howard Russell, war correspondent of the *Times*, asked the pertinent question if there were no Christian women in England who would go out and nurse the wounded soldiers, as the Sisters of Charity were doing in the hospitals of our French allies. The War Office was beset by lady volunteers who were not nurses, and the distracted Government knew not what to do. In the dilemma Mr. Sidney Herbert, then War Secretary, prompted by Mrs. Herbert, wrote to Miss Nightingale saying that she was "the one person in England" fitted for the task, and asking her to organise and take out a

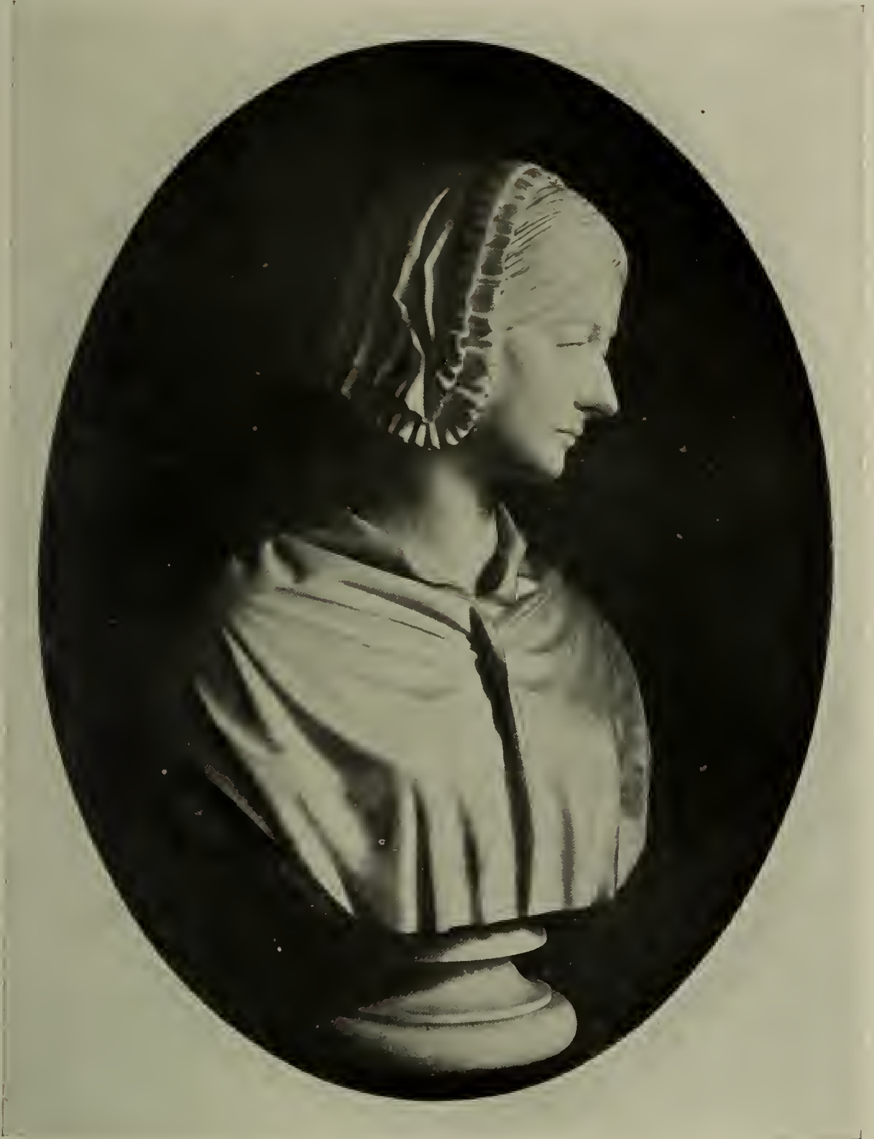

Photo: S. G. Payne & Son, Aylesbury.

PLATE I.—FLORENCE NIGHTINGALE

(From the Bust by the late Sir John Steele, presented to Miss Nightingale by the soldiers after the Crimean War.)

band of nurses to the hospital at Scutari, where the wounded from the Crimea were arriving by the shipload. By a remarkable coincidence a letter from Miss Nightingale, volunteering to undertake such a task, crossed that of Mr. Sidney Herbert, and so the "call" of Florence Nightingale received a rounded completeness.

It was characteristic of Miss Nightingale that she requested Mrs. Herbert to write to Lady Stratford de Redcliffe, wife of our Ambassador at Constantinople, and say regarding her appointment, "This is not a lady, but a real hospital nurse, and she has had experience." It is also important to note that Miss Nightingale was sent out by the Government as its accredited servant, and was endowed with full power as Lady Superintendent of Nursing not only at Scutari, but of all the hospitals in the East used for our wounded soldiery.

The difficulty which beset Florence Nightingale and Mrs. Herbert in finding, amongst the numerous candidates, nurses with even meagre training, points to the state of things that prevailed some half a century ago. Application was made to both Protestant and Roman Catholic institutions, and in less than a week a contingent of thirty-eight nurses was ready for departure. They were drawn from St. John's House, Mrs. Fry's Institution of Nursing Sisters, and Miss Sellon's Home; while three nurses were selected by Lady Maria Forrester, who had first formed a plan of sending nurses to the war, and ten from Roman Catholic institutions, the latter being designed to attend their fellow-religionists of the Irish regiments.

The garb of the "Angel Band."—The War Office dressed the "Angel Band" in a particularly hideous uniform. The dresses were made of one size, so that the short women had trailing skirts, and the tall women showed their feet if not their ankles. The Sisters of Mercy appear to have been profoundly thankful that they were permitted to wear their religious garb. When the first call for nurses was made during the American Civil War, it was expressly stated that the candidates must be "plain." Our authorities appear to have had a similar idea when they issued the first military nurses' uniform. It gave Miss Nightingale some trouble, and in the midst of her gigantic task at Scutari she was naturally wroth with nurses who worried her about the style of their garments. The heroine herself would doubtless have nursed in a sack, had it been necessary, though as a matter of fact she wore a neat, perfectly fitting black dress and a close white muslin cap.

At Scutari.—Miss Nightingale and her nurses, accompanied by her friends Mr. and Mrs. Bracebridge, of Atherstone Hall, arrived at the scene of her first labours, the great barrack hospital at Scutari, on the 4th of November, 1854, the day before the battle of Inkerman, and before she had had time to unpack her trunks the wounded from that great engagement began to pour into the hospital. They came with wounds undressed, limbs unset, and garments stiff with gore, just as they had been shipped from the distant battlefields in the Crimea. The hospital was a huge barrack of confusion, contagion, and loathsome conditions. Rats gnawed the limbs of the helpless men; there were none of the usual accessories and supplies of a hospital; and through the breakdown in the war commissariat there were neither changes of clothing nor proper food for the wounded and the fever- and cholera-stricken patients. One cannot wonder that the poor fellows cried at sight of kind women from home coming out to nurse them, and that they kissed the shadow of the "Lady with the Lamp," as Florence Nightingale went her midnight round through the long corridors of suffering men.

John Bull's misgivings.—It cannot, however, be pretended that the experiment was received with universal favour. Every evil possible was predicted from the introduction of women nurses into a military hospital. John Bull shook his head, and prophesied that the whole thing would end in the demoralisation of the homes of the country. In vain he was told that Miss Nightingale was really quite feminine, and even beautiful, and that she had passed her life "in strict obedience to her admiring parents"—he was not convinced of the wisdom of the proceeding.

There was also a feeling against accustoming soldiers to the gentle ministrations of women, and a fear that Tommy Atkins was going to be coddled. This was quaintly expressed by the widow of an old Crimean veteran, who once told me, with pride, "My husband took his chances in the trenches before Sebastopol—he wasn't down at Scutari with Miss Nightingale's chicken-pickers!"

The gigantic task which Miss Nightingale accomplished at Scutari cannot be followed in detail here. She has been criticised by Lord Stanmore, in his "Life of Sidney, Lord Herbert of Lea," on the grounds that she created difficulties, rode rough-shod over constituted authorities, and was impatient of interference, but in such a crisis as she was called to deal with, a pliant nature would have been worse than useless.

It was the commanding genius of the Lady-in-Chief which carried the citadel of prejudice and red-tape, and not only laid the foundations of military nursing reform, but lifted the whole nursing question into a position of national interest.

The first outcome of Miss Nightingale's work during the Crimean War was the reorganisation of the military hospitals at home, at which she laboured with Lord Herbert of Lea until his deeply deplored death in 1861. Queen Victoria had a keen appreciation of her administrative ability, and in the autumn of 1856 wrote to the Duke of Cambridge: "We have made Miss Nightingale's acquaintance, and are delighted and very much struck with her great gentleness, simplicity, and wonderfully clear and comprehensive head. I wish we had her at the War Office."

When the Royal Victoria Hospital at Netley was erected under the auspices of Queen Victoria and the Prince Consort, provision was made for a staff of women nurses under a Lady Superintendent; and gradually, after 1866, Sisters were appointed to the chief military hospitals.

The Nightingale Fund Training School.—The most epoch-marking event which succeeded the Crimean period was the founding, in 1860, of the Nightingale Fund Training School for Nurses in connection with old St. Thomas's Hospital. The scheme was endowed with the national tribute subscribed in appreciation of Miss Nightingale's services. The original idea was to found a special hospital of which she should be head, but as Miss Nightingale's shattered health prohibited her from undertaking such a charge, the Training School scheme, by her advice and with her active co-operation, was substituted.

The Training School was placed under the superintendence of Mrs. Wardroper, the Matron of St. Thomas's, who for some years had been quietly doing a great work in reforming the nursing at that hospital. When she first became Matron there were few sober women on the staff. She started to improve the conditions of the nurses, and so attracted a more respectable class of women. She was a lady of wonderful organising ability, and was Matron at St. Thomas's for thirty-four years, and Superintendent of the Nightingale Training School for twenty-six years. Associated with her for a long period at the Nightingale Training School was Miss Crossland, who may be said to have created the post of Home Sister. One may here mention the great services to the management of the scheme rendered by Mr. Henry Bonham Carter, who has been for so long a period secretary of the Nightingale Fund. From its initiation, Miss Nightingale continued to the end of her life to keep intimately in touch with the School which bears her name, and always regarded the probationers as her children.

The movement inaugurated at St. Thomas's Hospital made very slow progress during the first ten years. Even Florence Nightingale's brilliant example did not convince Mrs. Grundy and her stalwart partner John Bull that it was a right and fitting thing for young ladies to train for nurses, and Society people of the old régime like Lady Palmerston thought the old system preferable, and pronounced the Nightingale Fund "great humbug." Mrs. Carlyle, too, told racy stories to her visitors at Chelsea about the new nurses.

For long the Training School for Nurses at St. Thomas's Hospital was the model on which similar ventures were planned both at home and abroad, and in the United States of America and the Colonies. Its sisters went forth to all parts to organise Training Schools on the Nightingale plan. The earliest founded was the Royal Infirmary Training School for Nurses at Liverpool, in 1862.

Progress.—There was great acceleration of the movement after 1870. The Franco-German War aroused popular enthusiasm, and, as in Crimean days, women became eager to go to the succour of the wounded soldiery, and nursing became fashionable and attractive. The opening, in 1871, of the new Nightingale Home and Training School for Probationer Nurses in connection with the new St. Thomas's Hospital, the finest institution of the kind in Europe, gave a further impulse to trained nursing. Between 1870 and 1880 the chief hospitals in Great Britain instituted nursing reforms and laid the foundations of their Training Schools. Gradually the old hospital nurse was eliminated.

The preliminary Training School for probationer nurses was initiated at the London Hospital by Miss Eva Lückes in 1895, the pupils taking a six weeks' preliminary course at Tredegar House to test their general fitness for the work, and in some measure accustom them to it, before entering upon their regular training in the hospital. Guy's Hospital started a preliminary Training School in 1902, soon after the appointment of Miss Sarah Swift as Matron. As early as 1893 a preliminary course for intending probationers was started at the Royal Infirmary, Glasgow, by the matron, Mrs. Strong, acting on the suggestion of Sir William Macewen.

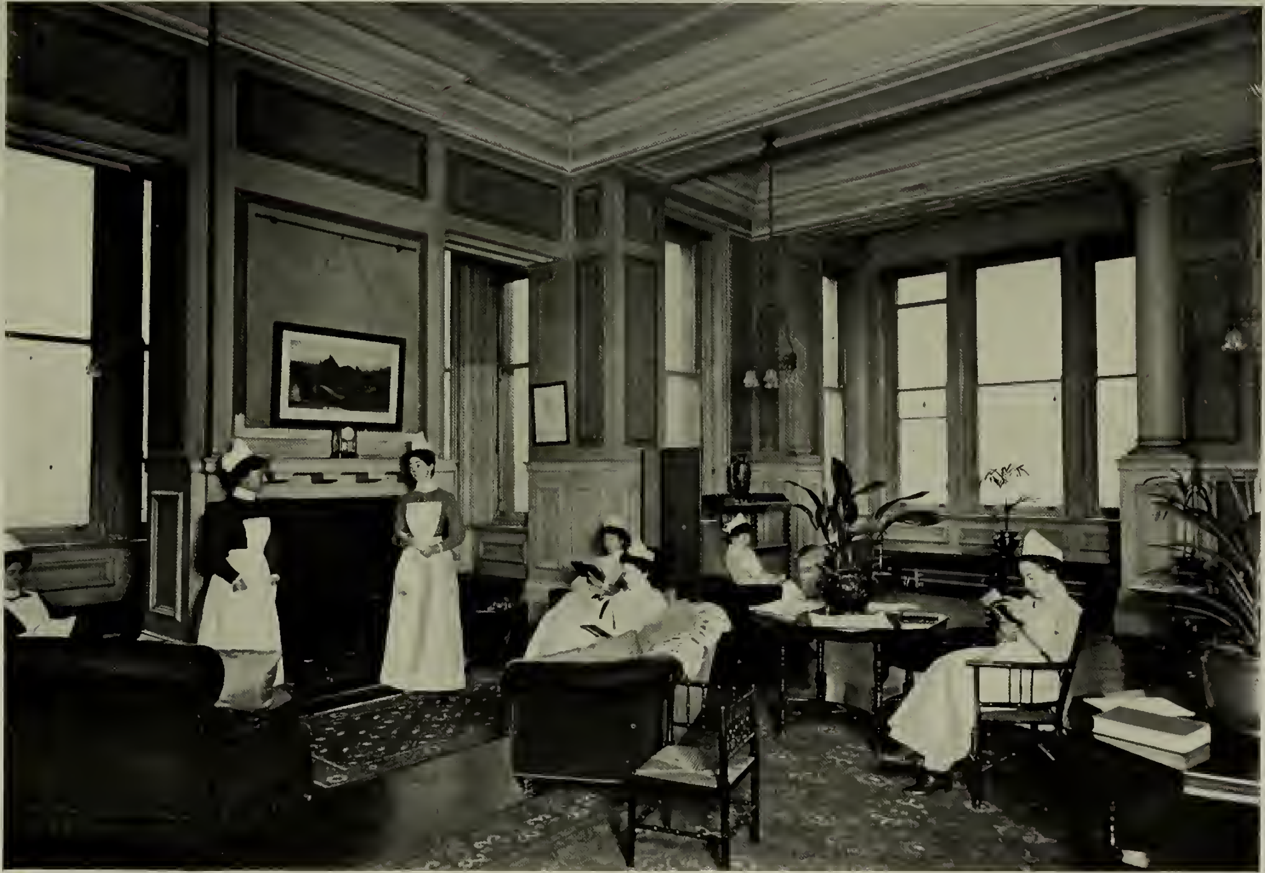

Photo: Pictorial Agency.

PLATE II.—SITTING-ROOM AT THE NURSES' HOME AT GUY'S HOSPITAL.

The conditions of hospital nursing have been revolutionised under the modern system, which brought in a different class of worker. The "scrubbers," rough women, who used to clatter through the wards on cleaning days with their buckets and brushes, have been superseded by ward maids, who relieve the nurses of much of the domestic work which fell to them in the old days. The "mealing" of patients and of nurses has been entirely reorganised. The hours of work for nurses have been lessened, and off-duty time secured. Special nurses' quarters are provided, and some of these Homes—for example, the Eva Lückes Home at the London Hospital, the new Nurses' Home at Guy's Hospital, and the Nurses' Home at the Royal Infirmary, Edinburgh—are as comfortable and artistic in their arrangements as a ladies' club-house. Indeed, the nursing staff of a great hospital has practically become a club, having recreations of all kinds and no lack of opportunities for social and intellectual intercourse.

The hospital or the infirmary is the portal through which a nurse enters the profession, and, having taken the course and obtained the certificate of one of the Training Schools, she can specialise for one of the different branches of nursing or remain in the service of the institution where she has trained.

Each of the main branches of nursing has developed under special organisations which I will briefly summarise in this general survey of the subject, leaving other writers to give more detailed information concerning certain of them in chapters that appear later.

ARMY NURSING

Beginning in the Crimean period and slowly developing by the appointment of a Superintendent and Sisters to the chief military hospitals, Army nursing was by a special order, dated March 29th, 1902, reorganised under the designation of **Queen Alexandra's Imperial Military Nursing Service**. The service is managed by a Nursing Board, of which Her Majesty Queen Alexandra is President. The service has various ranks—Principal Matrons, Matrons, Sisters, staff nurses, and such non-commissioned officers and qualified orderlies of the Royal Army Medical Corps as have been specially recommended; and at the head is the Matron-in-chief. The first to hold that important post was Miss Sidney Browne, R.R.C., who retired in April, 1906, in accordance with the age regulations, having performed four years' arduous work in the reorganisation of the new service. Miss Browne afterwards accepted the post of Matron-in-Chief of the Territorial Force Nursing Service. The present Matron-in-Chief of the Q.A.I.M.N.S. is Miss Ethel Becher.

The uniform of the Army Nursing Service is grey, with scarlet facings. The badge is a cross pattee (as borne in the Royal Arms of Denmark), surmounted by an Imperial Crown, the letter " A," within a circle, surmounted by an oval band bearing the inscription, " Q.A.I.M.N.S." The motto of the Service is *Sub Cruce Candida*—" Under the White Cross." The staff of the Q.A.I.M.N.S. is maintained in all military hospitals of one hundred beds and over at home and in certain stations abroad. A special staff of Sisters and staff nurses for duty in the smaller military hospitals is held in readiness in London and Dublin, whence they are dispatched to nurse all serious cases for which their services are deemed necessary or desirable. The status of Army nurses has vastly improved under the new organisation. Full particulars of the conditions of appointment can be obtained at the War Office, Whitehall, S.W.

The Military Nursing Service of India was started in 1888, through the influence of Lord and Lady Roberts, and was organised by the first Superintendent, Miss Loch. In 1903 it was named the **Queen Alexandra Military Nursing Service,** and its organisation completed by the Senior Superintendent, Miss R. A. Betty, R.R.C. Rules are furnished to applicants by the India Office, Whitehall, S.W.

Allied with the regular military nursing service is the **Army Nursing Service Reserve,** founded by Princess Christian to supplement the regular service in the event of war. At the outbreak of the War in 1914 there were over six hundred nurses in the Reserve. When on service they are graded as Matrons, Sisters, and staff nurses, and receive the same rates of pay as the members of the permanent service. The nurses wear the Princess Christian's badge.

The **Royal Army Medical Corps** consists of men who enlist in the Army and are trained for nursing work in the military hospitals. It is divided into four sections—a nursing, a cooking, a clerical, and a general duty section.

The **British Red Cross Society** has also been reconstructed since the Boer War, and works independently under its own committee in time of peace, passing under War Office regulations in time of war. A special object of the Society is the training of military nurses. The Red Cross work in this country owed its initiation to the late Lord

Wantage and Sir John Furley, under whose auspices the British National Society for Aid to the Sick and Wounded in War was formed in July, 1870.

The **Territorial Force Nursing Service,** the youngest of the military nursing organisations, was formed in 1908, to serve the general hospitals of the Territorial Force in the event of an invasion (*see* p. 166). Its value has been evidenced in the Great War which broke out in 1914.

NAVAL NURSING

The Naval Nursing Service is of later growth than that of the Army. As early as 1847, however, Admiral Sir John Parry made an effort to improve the nursing at the Royal Naval Hospital, Haslar, and drew up an appeal, in which he begged "all good Christians" to try to induce even three or four respectable women to undergo training for naval nursing. It did not, however, bring a single volunteer. In 1884 the Admiralty first appointed Sisters to take charge of the nursing in the chief naval hospitals. Only eighteen in all were appointed. In 1902 the naval service was reorganised and designated **Queen Alexandra's Royal Naval Nursing Service.** It has three grades, Head Sisters, Superintending Sisters, and Nursing Sisters. The Head Sisters are the Lady Superintendents of the respective naval hospitals. There are also ward masters under a warrant officer. The Naval Sisters wear a badge embroidered with Queen Alexandra's monogram, interlaced with an anchor and cable. The uniform is navy blue serge, Sicilian or cotton according to rank. The dress has scarlet cuffs, and the cape a band or piping of scarlet, also according to rank.

NURSING IN THE COLONIES AND INDIA

The growth of trained nursing in India and the Colonies has been a natural outcome of the movement in the Mother Country. Women trained in the great hospitals at home have gone out to organise nursing on modern lines in Colonial hospitals and institutions. The self-governing Colonies are now rapidly forming systems of their own, and aim at producing trained nurses indigenous to the soil. They have their own nursing associations and literary organs. In Canada the Victorian Order of Nurses was founded by Lady Aberdeen, during Lord Aberdeen's Viceroyalty, to commemorate the Diamond Jubilee of Queen Victoria, and is organised on similar lines to the Queen's Nurses at home, and

Lady Minto established the Cottage Hospital Fund in connection with the Victorian Order.

The more important Crown Colonies and Protectorates have good Government hospitals with British-trained nurses, and during the past few years the hitherto neglected outlying parts have been supplied with nurses through the efforts of that admirable organisation the **Colonial Nursing Association**, allied with the Colonial Office and having its headquarters at the Imperial Institute. The idea originated with Lady Pigott, the wife of a distinguished member of the Colonial Service. The Association now selects the Matrons and nurses for upwards of twenty Crown Colonies and Protectorates, and for the British communities in several foreign countries, besides supplying nurses for South Africa, Western Australia, Canada, and the British Borneo Company. No place is too isolated, no climate too deadly, for its nurses to face. When necessary, they receive a special course of fever training at the School of Tropical Medicine at the Albert Docks, London, or at that in Liverpool.

Colonial appointments are much sought after. In spite of the disadvantages of climate and other drawbacks, they offer undoubted attractions. A midwifery qualification, the certificate of the Central Midwives Board, is practically required from every candidate for appointment. Very few vacancies occur where this is not essential. A scheme was started by the Colonial Nursing Association in 1904 with the object of encouraging the nurses when at home on leave to take a "post-graduate" course at a large general hospital, by way of rubbing up their knowledge, and the opportunity afforded to candidates to take a course at one of the schools of tropical medicine has been gladly taken, with excellent results. The schools of tropical medicine are in connection with the Seamen's Hospital Society, Greenwich, and the Royal Southern Hospital, Liverpool. Since the foundation of the Colonial Nursing Association, in 1896, 659 nurses have been supplied, about two-thirds for Government service and the remainder for private posts.*

In India the nursing problem is a vast question. The Government hospitals are largely staffed by British-trained women, and the work is organised by the Medical Department of the India Office. The Dufferin Fund, founded by Lady Dufferin under the auspices of Queen Victoria in 1885, has had widespread results in the training of medical women for India, and in the establishment of upwards of two hundred and fifty hospitals, special wards, and dispensaries of various kinds for the treatment of women, many of which afford training for Anglo-Indian and native nurses.

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* The 18th Annual Report, March 31st, 1914, showed 329 nurses at work; of these 209 were in Government posts in the Crown Colonies.

The late Lady Curzon started in 1901 the Victoria Memorial Scholarship Fund to promote the training of the *dais*, or native midwives of India, on modern lines. Upwards of 400 *dais* have passed the examination.

Lady Minto, after her husband became Viceroy of India, launched a big scheme for bringing trained nursing within the reach of Europeans in every part of British India. The Up-Country Nursing Association, started in 1892, is now amalgamated with **Lady Minto's Indian Nursing Association**, which now has a number of branches at work.

No other nation has developed such a highly organised and efficient system of nursing in all branches as has grown up of late years in the British Empire, and it is a matter for national pride that our beloved country should have taken the lead in this great and beneficent modern movement.

POOR LAW NURSING

Nursing in the Poor Law infirmaries or State hospitals is now under the control of the Local Government Board. The Metropolitan infirmaries and the large Provincial infirmaries provide training for their nurses on lines similar to those of the training in hospitals. In the old days there were no separate infirmaries, and the sick-wards of workhouses were the scene of great misery, neglect, and often cruelty. The sick and bedridden were left to the tender mercies of old and generally infirm pauper women, who in some cases vented their malignity upon the helpless sufferers. If it was difficult to obtain respectable women nurses for general hospitals, it can be readily understood that no effort was made to procure them for workhouses as they were then. Moreover, Bumbledom was very economical in regard to the sick, and utilised the pauper inmates instead of paying for nurses. Even ordinary medicines were provided by the medical officers out of their very inadequate salaries, and sick-diet for paupers was regarded as a monstrous extravagance.

Through the efforts of that veteran worker, Miss Louisa Twining, attempts were made in the fifties to bring sunshine into the workhouse. In 1857 the **Workhouse Visiting Society**, of which Miss Twining became hon. secretary, was formed. Ladies of the society, after a great fight to obtain the permission, began to visit the workhouses, and so were able to investigate the treatment of the sick. Dr. Joseph Rogers, appointed medical officer to the Strand Union in 1856, was a most practical and active worker in the movement, which had the support of many of the most influential reformers of the day, such as Monckton Milnes, Roundell Palmer, Mrs. Sidney Herbert, and Mrs. Tait. The Right Hon. W. C. Cowper was president of the society. In 1865 the society sent a deputation to Mr. Villiers, President of the old Poor Law Board, with a petition and statement regarding the condition of the sick in workhouse infirmaries. The passing of Mr. Gathorne Hardy's Metropolitan Poor Law Bill in 1867 resulted in the establishment of separate and efficiently staffed infirmaries throughout the Metropolitan area, and the elimination of pauper nurses gradually took place, and a system of trained nurses was established in the more important workhouse infirmaries.

The first experiment in training nurses for Poor Law work was made by the late William Rathbone, M.P., in the male wards of the Brownlow Hill Infirmary, Liverpool, in 1865. On the recommendation of Miss Nightingale, Miss Agnes Jones, a Sister of St. Thomas's Hospital, was appointed Superintendent of the work, and took with her a staff of twelve nurses from St. Thomas's. She had eighteen probationers and fifty-four old pauper women under training. During the first year no fewer than 141 pauper nurses were tried, but not one of them turned out even a passable nurse. Agnes Jones laboured for three years, until her death in 1868, and by her noble pioneer efforts laid the foundation of this branch of trained nursing.

Progress was slow, especially in the provinces, and in 1879 the **Workhouse Nursing Association** was started, and has continued its labours, at first in training and supplying nurses, and latterly in pressing forward legislation. In 1894 Mr. Ernest Hart, editor of the *British Medical Journal*, instituted an investigation into the condition of English and Welsh workhouse infirmaries, and appointed Miss Catherine Wood to undertake the work; and at the request of the Irish Medical Association she made a similar investigation in Ireland.

There has been a great increase in candidates for the Poor Law nursing service since the Local Government Board issued its Nursing Orders of 1896 and 1897, appointing trained Superintendents of Nurses in the smaller institutions, and abolishing pauper nurses. A report of the Departmental Committee on the subject of Poor Law Nursing was published in 1902, but has not been acted upon. Two years later a Royal Commission on the Poor Laws was appointed, Miss Octavia Hill, Mrs. Sidney Webb, and Mrs. Bernard Bosanquet being among the members.*

The Poor Law nursing service has advanced far in organisation and efficiency, and nurses training in the infirmaries under modern conditions are found occupying much the same positions as their sisters from the general hospitals. In 1907 an Association of the Matrons of Poor Law Infirmaries was founded, which counts among its members almost every Matron of such infirmaries as are recognised by the Local Government Board as Training Schools.

The hospitals under the Metropolitan Asylums Board afford training for nurses in fever and other infectious diseases, and an increasing number of women specialise in this most important branch of work.

MENTAL NURSING

Mental nursing is now coming into line in point of training and organisation with other branches of the profession. The first systematic attempt to train asylum nurses began within the Council of the **Medico-Psychological Association.** Among those who took a leading part in the movement may be mentioned Sir James Crichton-Browne, Dr. Cluston, Dr. Hays Newington, Sir George Savage, Dr. Spence. Dr. Yellowlees, and Dr. Robert Jones, formerly hon. secretary of the society, and president in 1906–7. The work was begun some five-and-twenty years ago, and now the public asylums afford special courses of training as a matter of course. The Medico-Psychological Association remains the examining body for mental nursing, and upwards of eight thousand men and women have obtained its certificate. The original course of two years has been raised to three.

As early as 1890, however, Dr. Harding instituted a three years' course of training, with examination, for mental nurses at the Berry Wood Asylum, and was the first to do so. Berry Wood continues to grant its own certificates, and several other asylums have followed suit.

The revolution in the treatment of the insane, which was initiated in this country by Dr. John Conolly at Hanwell in 1839, gradually brought about a change in the class of attendant. For the male and female keepers who used brute force and unnameable cruelties to control their patients have been substituted attendants and nurses trained to manage their patients on the non-restraint principle. That great and model institution of Claybury, built by the London County Council in 1893, and placed under the superintendence of Dr. Robert Jones, may be cited as an up-to-date example of the modern régime in mental nursing.

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* The Commission issued its Report in February, 1909. It is divided into a Majority Report, signed by fourteen of the Commissioners, and a Minority Report signed by four, including Mrs. Sidney Webb. Both Reports favour the abolition of workhouses, as at present constituted, and recommend the establishment of specialised institutions for the sick, the old, the young, and the mentally defective.

The organisation of asylum nurses and attendants began in 1895, when Miss Honnor Morten, with the help of Miss Laura Evans, the Matron of Berry Wood Asylum, and supported by Dr. Harding, started the **Asylum Workers' Association**, of which Sir John Jardine, K.C.I.E., M.P., is now president. Dr. G. E. Shuttleworth is honorary secretary of the association, and has developed its organ, the *Asylum News*, of which Dr. James Nicoll is Editor. Sir James Crichton-Browne, a former president of the association, remains one of its most distinguished supporters. The name of Dr. Browne, the father of Sir James, is an honoured one in the movement for improving the conditions of asylum nursing. As early as 1854 Dr. Browne arranged at the Royal Crichton Institution, Dumfries, the first course of lectures ever given to mental nurses in the British Isles.

DISTRICT NURSING

District nursing is one of the most popular and most highly organised branches of the profession. The district nurse is something more than a professional worker, she has become a great factor in social reform. She touches the life of the poor at every point, and her influence on the homes and on the habits of the people is almost as important as her care for the sick. District nursing has become a valuable aid to the over-burdened hospitals, by relieving them of the care of many patients who would otherwise be in their wards. The presence of the trained nurse in the slums and alleys of our great cities has done more to promote sanitation than Acts of Parliament. The usefulness of this branch of nursing has been aided immensely by its highly efficient organisation under the body so widely known as the "Queen's Nurses."

The earliest mention of trained nurses "to work among the poor in their own homes" is found in the aims set forth by the St. John's House Sisterhood, and the first special association for promoting this object was the **Bible-women and Nurses' Mission**, founded by Mrs. Ranyard in 1856. The institution developed its work on modern lines with hospital trained nurses, and celebrated its jubilee in 1906.

The founder of trained district nursing was, however, William Rathbone, M.P. for Liverpool, who, in 1859, began a small experiment in that city with one nurse who had been his late wife's attendant. The first important result was the founding in 1862 of the **Liverpool Training School and Home for Nurses,** one object of which was to provide nurses for the sick poor in their own homes. In London, the first District Nursing Association was started in 1868 by the Hon. Mrs. Stuart Wortley and Mr. Robert Wigram, under the name of the **East London Nursing Society,** which is affiliated with Queen Victoria's Jubilee Institute (*see* below).

Still, as yet the problem of providing district nursing for the metropolis was scarcely touched, and in 1874, Sir Edmund Lechmere and others connected with the English branch of the Order of St. John of Jerusalem formulated a scheme which resulted in the foundation of the **Metropolitan and National Association for Providing Trained Nurses for the Sick Poor.** Miss Nightingale took great interest in the work, and largely through her appeal the Central Home for the nurses of the association was opened in Bloomsbury Square. Miss Florence Lees (Mrs. Dacre Craven) worked indefatigably as Superintendent-General of the work of the association, and as head of the training home.

The jubilee of Queen Victoria was a red-letter year in the history of district nursing. Her late Majesty devoted £70,000 of the Women's Jubilee offering to this work, and in 1889 **Queen Victoria's Jubilee Institute for Nurses** was incorporated by Royal charter. The nurses of the association have by common consent become known as the Queen's Nurses. After King Edward's accession, Queen Alexandra became patron of the Jubilee Institute, and in July, 1901, held a reception of her nurses in the gardens of Marlborough House. Her Majesty has shown great interest in the progress of the work, and in 1903 gave a thousand pounds to facilitate the removal of the Institute from St. Katharine's Hospital, in Regent's Park, to offices in Victoria Street. The President is the Duke of Devonshire; Chairman of Council, Viscount Goschen; General Superintendent, Miss Amy Hughes; Secretary, Miss A. C. Lowe; Superintendent of the Irish Branch, Miss Michie; Superintendent of the Scottish Branch, Miss Peterkin, and Secretary, Miss Graham; Superintendent for Wales, Miss E. Smith

The qualifications for a Queen's nurse are three years' training in any approved general hospital, and a further training of not less than six months in the special work of district nursing, which includes the care of mothers and infants after childbirth, at one of the homes of the Institute, and the nursing of tuberculous cases. Candidates are required to pass an examination in the principles of district nursing before their names are entered on the roll.

The Institute in London may be described as the main seat of government. With it are affiliated upwards of 1,000 nursing associations throughout the United Kingdom and Ireland, and 34 county nursing associations in the United Kingdom—24 in England, 7 in Scotland, and 3 in Wales. There are training and branch homes in London and the provinces, in Dublin—one Protestant and one Roman Catholic—at Cardiff, a central home in Edinburgh, and branch homes at Glasgow, Dundee, Aberdeen, and Paisley.

The Scottish branch is under a separate Council of which Princess Louise, Duchess of Argyll, is President, and it has pressed forward its work until Scotland is covered with a network of 260 nursing associations.

The total number of nurses on December 31st, 1914, in connection with the Institute, including Queen's nurses and candidates, village nurses and midwives, and those who had undertaken duties in connection with the War, was 4,009, thus distributed: England, 3,098; Scotland, 448; Ireland, 191; and Wales, 272. The Queen's nurses themselves numbered 2,019. To this total England contributed 1,303; Scotland, 395; Ireland, 167; and Wales, 154.

A much-needed extension of the work in Ireland was made in 1903, when Lady Dudley started a fund for providing district nurses in the parts of Ireland where no funds could be raised locally.

School Nursing.—Many posts are now open to nurses under the London County Council and the corresponding education authorities in the counties in connection with the inspection of school children, and the care of crippled or defective children. Salaries vary with the duties, etc.

PRIVATE NURSING

This form of nursing attracts by far the largest number of nurses after the completion of their training. It is the most remunerative branch of the profession. It may be classified under three main heads: the institution nurse, the independent nurse, and the co-operative nurse.

The **institution nurse** is engaged on special agreement with an institution, and receives a stated salary, sometimes augmented by a small commission on the patients' fees. One of the earliest private nursing institutions was the **Mildmay Nurses' Home**, founded in 1869 by the late Mrs. Pennefather, which continues its work to-day with a staff of fully trained certificated nurses at Newington Green. Following closely upon this came that important organisation the **Royal Scottish Nursing Institution**, founded in Edinburgh in 1872. The success of that institution owes much to the untiring labours of Miss Dundas, the first honorary secretary. In 1873 Miss Firth started the **London Association of Nurses**, which carries on its work on modern lines in New Bond Street, and was the pioneer of the principle of co-operation. In 1874 Miss M'Alpin founded the **Glasgow Training Home for Nurses**, and gave her services as honorary Lady Superintendent for thirty-three years.

Private nursing institutions have multiplied since the early pioneer ventures were started. Private nursing and surgical homes give employment to a multitude of nurses, and a number of the larger hospitals now have private nursing institutions for their nurses who desire to devote themselves to this branch of work. The first of such institutions was started on the suggestion of Miss Eva Lückes, at the London Hospital, where a large staff of nurses is now kept for this special purpose.

The **independent nurse** forms her own connection and manages her own affairs. It rests with her employers to see that she possesses proper qualifications and an accepted certificate of training.

The **co-operative nurse** joins a body working together, each taking her own fees subject to an agreed percentage for the working fund of the society. The first nurses' association to take the name of co-operative was the **Nurses' Co-operation**, founded in 1891, largely through the efforts of Mrs. Belcher Houghton and Miss Honnor Morten. The introduction of the co-operative system has given a great impetus to private nursing, and other associations have been formed in London and the leading provincial towns.

SPECIAL NURSING

The private nurse may elect to become a specialist and devote herself to fever nursing, mental nursing, children's nursing, monthly nursing, midwifery or massage. The two latter are also practised as distinct employments. The founding of the **Incorporated Society of Trained Masseuses** in 1895 was the first attempt to organise the profession of massage. It has granted many hundreds of certificates. At Guy's Hospital the Raphael gold medal is awarded for massage.

Midwifery and **monthly nursing** form the oldest branch of private nursing. In Genesis a midwife receives mention, but unfortunately her patient, Rachel, died. From other references in the early Scriptures, it is clear that the midwife alone presided over births. In mediæval times this branch of obstetrics was forbidden to men, the midwives were protected by strong corporations, and the *sage femme* was a powerful person. After the Reformation midwives were required to be licensed by the Bishops, and later they took oath at Doctors' Commons. When the medical profession began, in the seventeenth century, to take an interest in this branch of work the position of the midwife declined.

The first Training School of midwifery was started at the Rotunda Hospital, Dublin, the first lying-in hospital established in the British dominions. As early as 1755 it fixed the length of training for female pupils at six months, in 1786 it began to grant certificates of proficiency, and in 1788 passed a law requiring all pupils to pass an examination. The middle of the eighteenth century saw the rise of several lying-in hospitals in London, which became Training Schools for nurses and midwives. Of these, Endell Street is the oldest and Queen Charlotte's the largest.

Still ignorant and untrained midwives pervaded the country. Efforts were made by the Society of Apothecaries, the London Obstetrical Society, and the British Medical Association to get enactments passed for the control of midwives. An important step in advance was made in 1881, when the **Midwives' Institute** was founded by Miss Louisa Hubbard and the late Mrs. Henry Smith, to raise the efficiency and improve the status of midwives. The Institute proved a most important factor in pressing forward the legislation which has resulted in the passing of the Registration of Midwives Act, 1902. Miss Wilson, the former president, and Miss Rosalind Paget, the honorary treasurer, have been indefatigable in promoting the objects of the Institute throughout its existence. It was incorporated in 1889, and is now an important centre, both social and educational, for midwives and monthly nurses, and also for masseuses.

It keeps a register for members, and acts as a medium between them and the public. Miss Amy Hughes succeeded to the Presidency in 1911.

The Registration of Midwives Act is administered by the **Central Midwives Board.** The full provisions of the Act only came into force in 1910 (*see* p. 39). A period of grace was given to the old untrained midwife, but since March 31st, 1905, midwives in England and Wales have been required to pass the examination of the Central Midwives Board before they could be enrolled. The number of registered midwives is rapidly increasing, and on July 1st, 1915, there were 38,801 names on the roll. Many monthly nurses now work for the Central Midwives Board certificate.

There are many openings in these days for certified midwives. A considerable number are working in country districts, under Queen Victoria's Jubilee Institute; there are appointments to be had as teachers and heads of wards in hospitals and infirmaries; and there are also posts as inspectors of midwives under the local supervising authorities.

PENSION FUNDS

Nursing in whatever branch is an arduous and exacting calling, which absorbs the picked years of a woman's life, and the remuneration is comparatively small. It has been computed that the working life of a nurse is unusually short. "Some nurses begin to find difficulty in obtaining work after the age of forty, most nurses fail to obtain regular employment after the age of forty-five, and very few can earn a livelihood at fifty." The need for insurance is therefore great indeed. The earliest institutions started pension funds for their nurses in old age, and some hospitals, notably the London, have generous Nurse Pension Funds. The State services provide pensions, and there is also a superannuation scheme for Poor Law nurses. Many hospitals help their nurses by paying part of their premiums, through federation with the Royal National Pension Fund, referred to below. However, for the great majority of nurses no provision is made. The idea occurred to Mr. (now Sir Henry) Burdett, the editor of the *Hospital*, who has been intimately associated with the modern nursing movement, that a business scheme might be formulated to enable members of the nursing profession to insure for pensions on advantageous terms. The result was the founding, in 1887, of the **Royal National Pension Fund for Nurses,** of which

King Edward VII. and Queen Alexandra, then Prince and Princess of Wales, became respectively Patron and President.

The inaugural meeting was held on October 12th, 1887, and Sir Henry Burdett explained his scheme. He generously gave £500 towards the preliminary expenses of the enterprise, and collected a thousand pounds from his friends. The handsome gift of £20,000 was deposited in Chancery for the security of the fund by Lord Rothschild, Mr. Junius S. Morgan, Messrs. Anthony Gibbs and Sons, and Mr. E. A. Hambro. The Fund was incorporated by Royal charter in February, 1888, and on July 4th, 1890, the then Prince and Princess of Wales gave a reception to the first thousand policy-holders in the gardens of Marlborough House.

During the past few years there has been a great increase in the number of policies taken out. Since the establishment of the Fund a sum of over £580,000 has been paid to nurses obliged to leave the Fund; over £33,000 has been distributed in sick allowances, and some £300,000 in pensions. The benefits of the Fund are open to nurses, attendants on the insane, and all responsible paid officials connected with hospitals and kindred institutions. It should be understood that the Fund does not profess to be a charitable enterprise, but is a business concern for enabling nurses to insure for old age on advantageous terms. Handsome new offices for the institution were built at the foot of Buckingham Street, Strand, overlooking one of the Victoria Embankment gardens, in 1907–8.

ORGANISATION

During the past twenty years there has been a great growth in the number of nurses in all branches of the profession, and the importance of trained nursing has become more widely recognised in its relation to the work of the surgeon and doctor. The period has been marked by efforts to organise this vast body of women workers on lines which will accord them a professional status, and give protection to the public from spurious practitioners. The year 1887 marks the definite beginning of the movement. It had doubtless been in the minds of prominent people in the nursing world for some time that something should be done in the way of organisation. An attempt to form an association of nurses, as a section of the Hospitals Association, was made in 1887 by Miss Catherine Wood, and a meeting for discussing the project was held at the house of Sir Henry Burdett, but as a basis of agreement could not be arrived at with the Hospitals Association, the original idea was abandoned.

Some little time later, Mrs. Bedford Fenwick, formerly Matron of St. Bartholomew's Hospital, held a gathering at her house for the purpose of forming an independent association of British nurses, and formulated a plan. At a subsequent meeting (December 7th, 1887), attended by representative Matrons and Nursing Superintendents, Mrs. Fenwick read a paper setting forth the objects of her scheme. With the concurrence of the ladies present, an association to be called the **British Nurses' Association** was founded, and an executive committee elected. Miss Catherine Wood subsequently undertook the duties of honorary secretary, and H.R.H. the Princess Christian consented to become President of the association, and presided over its first council meeting. The association had the support of eminent members of the medical profession.

The great aim of the founders of the association was to raise the status of nursing, and in 1890 it began a system of registration. After a short period of grace no nurse who had not had three years' hospital training was eligible to be on the registration roll. This was the first attempt to put the principle of registered qualification for nurses into practice, and long and continued efforts were made by appeals from Princess Christian as President, and by the efforts of the executive committee, to educate public opinion in the matter. The application by the association for a Royal charter aroused powerful opposition, and a special inquiry was made before the Privy Council. In 1893 the battle for the nurses' charter came to a triumphant conclusion. Queen Victoria granted a charter of incorporation to the association, which now was able to affix " Royal " to its style and title. The motto of the association is " Steadfast and True." Its organ is the *Nurses' Journal.* Connected with the association are the Auxiliary Nurses' Society, the Helena Benevolent Fund, the Nurses' Settlement at Clapton, for members past work and in straitened circumstances, and the Chartered Nurses' Society, on co-operative lines.

The association is governed by a general council and executive committee, consisting partly of nurses and partly of medical men. Trained nurses and medical men are eligible for membership. The membership remains steady at about 3,000. Recently the Corporation has put into operation a scheme for granting a diploma of nursing to nurses who, having completed a minimum of three years' training in a recognised hospital or Poor Law infirmary, pass an examination satisfactory to examiners appointed by the Royal British Nurses' Association, the first examination being held in October, 1907.

Though the association had initiated the principle of registration, it was only as a voluntary act on the part of those desiring membership. A vigorous campaign was, however, being worked by members of the association in favour of State registration. In 1889 the General Medical Council passed a resolution in favour of the State registration of nurses, and the efforts of sympathisers were quickened. In 1894 was founded the **Matrons' Council of Great Britain and Ireland,** which has ever since pursued a vigorous propaganda, by means of conferences and discussions, in favour of State registration. Its general object is to enable members to take counsel together upon matters affecting their profession.

More definite action for promoting State registration was taken in 1902, when the **Society for the State Registration of Trained Nurses** was founded, with the late Miss Louisa Stevenson, of Edinburgh, as first president. The honorary secretary and treasurer is Mrs. Bedford Fenwick, the founder and editor of its organ, the *British Journal of Nursing*.

In 1903 the Royal British Nurses' Association passed a resolution in favour of State registration, and prepared a Parliamentary Bill, which was introduced into the House of Commons by the Hon. Claude Hay on March 7th, 1904. A Bill prepared by the Society for State Registration had been introduced by Dr. Farquharson on February 15th, 1904. Meanwhile a movement in opposition to the State registration of nurses was organised by the Central Hospital Council for London, and was supported by some distinguished members of the medical and nursing worlds. Eventually the vexed question of State registration became the subject of investigation by a Select Committee of the House of Commons, who issued their report in July, 1905, and expressed a general opinion in favour of some change in the conditions under which nursing is carried on. In Clause II., they set forth that "it is desirable that a register of nurses should be kept by a central body appointed by the State, and that, while it is not desirable to prohibit unregistered persons from nursing for gain, no person should be entitled to assume the designation of 'registered nurse' whose name is not upon the register." The Royal British Nurses' Association and the Society for the State Registration of Trained Nurses re-drafted their Parliamentary Bills in favour of State registration, in accordance with the recommendations of the Select Committee. The Official Directory Nurses' Bill, promoted by the Central Hospital Council, was moved for second reading in the House of Lords, May 6th, 1908, by Lord Balfour of Burleigh. It was vigorously opposed by Lord Ampthill, and upon being put to the vote was rejected by a majority of thirty-three.

In 1909 three Bills, having for their object the State registration of nurses, were introduced into the House of Commons. On the initiative of the Society for the State Registration of Trained Nurses a Central Committee was formed of delegates from each of the following societies, with Lord Ampthill as Chairman—viz. the British Medical Association, the Matrons' Council of Great Britain and Ireland, the Royal British Nurses' Association, the Society for the State Registration of Trained Nurses, the Fever Nurses' Association, the Association for Promoting the Registration of Nurses in Scotland, the Scottish Nurses' Association, and the Irish Nurses' Association. The result of the deliberations of this Committee is that all the societies represented upon it are now united in support of one Bill. A Registration Bill introduced into the House of Commons by Dr. Chapple has passed its first reading by a very large majority.

In New Zealand, Cape Colony, Natal, and elsewhere, State registration is reported to be working well. There is a movement in its favour in Australia, where, however, a voluntary body, the Australian Trained Nurses' Association, has accomplished a great deal towards the organisation of the profession, and has established a system of registration throughout the Commonwealth, with the exception of Victoria, where the nursing is organised on similar lines by the Royal Victorian Trained Nurses' Association. Many of the States of America have passed Nurse Registration Acts, among the most recent of them to take this course being the States of Kentucky and Mississippi.

In closing this brief review of the past and present of nursing, it is pleasing to record that the first woman selected by the late King Edward to be enrolled in the Order of Merit was Florence Nightingale —a richly merited distinction which was conferred in December, 1907, and was followed the next year by investiture with the Freedom of the City of London. The honour thus conferred upon Miss Nightingale was reflected upon the profession, of which she may be regarded as the founder.

CHAPTER II

THE LAW RELATING TO NURSES AND NURSING

By R. Storry Deans, Barrister-at-Law

1. The Legal Position of Nurses—Relations to those who engage Her—Relations to the Doctor—Position of a Nursing Home in a Case of Negligence. 2. Term of a Nurse's Engagement. 3. Liabilities of a Nurse. 4. Nurses in Hospitals and Public Infirmaries. 5. The Notification of Infectious Diseases. 6. The Law relating to Midwives—The Midwives Act, 1902—The Notification of Births Act, 1907.

1. **The legal position of nurses.**—A nurse, as such, has at present no recognised position or status in law. That is to say, there is nobody who can say she (or he) is, in law, entitled to be called a nurse, any more than anybody else. Put in another way, it may be said that any person, skilful or unskilful, trained or untrained, may legally call herself a nurse. To this broad proposition there is one exception. By the Midwives Act, 1902, midwives are required to satisfy the Central Midwives Board of their ability and knowledge, and may not practise midwifery unless they are certified competent. This matter will be dealt with later in this chapter.

The position of the nurse as regards the patient, the patient's friends, and the medical man, is, from a legal point of view, not easy to define. The nurse engaged in private work is almost invariably engaged, except in charitable cases, by the head of a household, to attend on him (or her) or on some member of the household who is sick.

Let me take the case of the nurse who practises on her own account, and is engaged by Mr. A. to attend himself or a member of his family during an illness, or through an operation. The position of such a nurse is essentially different from that of the medical man in attendance. For while the medical man is in a position of independence, and is in no way under the orders of Mr. A., the nurse is in the position of a servant of Mr. A. She is, of course, a servant of a special character, with special duties. She cannot be asked to go outside those duties, or to undertake the work of a domestic servant. But at the same time she becomes a member of Mr. A.'s household; and is bound to obey the reasonable rules of that household; and is liable to be dismissed by Mr. A. if she does not conform to those rules, and to such reasonable orders as he may give. This may not be a very pleasant doctrine, but I am not responsible for that. What I have to do is simply to expound the law; and my authority for this proposition is the judgment of the late Lord Justice Mathew in the case of Hall *v.* Lees (*Law Reports*, 1904, 2 K.B.).

As to the relations between the nurse and the medical man in attendance, the nurse is bound, in my view, to carry out the doctor's instructions in all that relates to the care of the patient. If she does not, she is not doing her duty; and would, I think, be liable to dismissal by the employer. One can imagine a case in which a nurse of great skill and experience in a certain class of cases might be required by the doctor—a person, maybe, of less experience and no great skill—to do something which, in her opinion, would be disastrous to the patient. In such an emergency, in my opinion, the nurse ought to communicate with the employer (or, if he is the patient, and is unfit or unable to exercise his judgment, with his friends—wife, brother, or other person in charge), and explain the position, leaving him to decide whether he will call in a second medical opinion, or how otherwise he will act. Such cases must be very rare; and, in almost every instance, a nurse is bound to act as the medical attendant directs.

When a nurse is supplied by a Nursing Home, she is, nevertheless, the servant of the hypothetical Mr. A., even though he pays the Nursing Home, and the home is responsible to her. This was decided in the case of Hall *v.* Lees, referred to above. In that case, a gentleman of Oldham applied to a nursing institution in that town for a nurse to attend his wife. The institution was one managed by a board of philanthropists, and partly maintained by the charitable contributions of the public. Nurses of skill and experience were engaged by the board, maintained in the Home, and paid a salary. They were sent out to attend the very poor without charge; but people who could afford to pay were charged a fee, bearing some proportion to their means. The fee was paid to the institution; not to the nurse. Sometimes it was arranged that a nurse should sleep in the Home; and sometimes she resided with the patient's friends. Speaking generally, it may be said that the person engaging the nurse made all arrangements not with the nurse, but with the Superintendent or Matron of the institution. The plaintiff in Hall *v.* Lees, through his medical man, engaged two nurses from the Oldham institution; and during the course of their attendance one of them inadvertently applied a hot-water bottle to the skin of the patient (the plaintiff's wife) without first covering the bottle with a blanket. The patient was under the influence of an anæsthetic at the time; and so did not feel the burning of her skin; but her skin was badly blistered, and she subsequently suffered much pain and inconvenience. It must be taken—indeed it was not seriously contested at the trial—that the nurse's mistake was negligence in law and in fact; and that she would have been cast in damages had she been sued. It must also be taken that the nurse, though she erred in this instance, was a competent and skilled woman.

Instead, however, of suing the nurse, the plaintiff and his wife sued the nursing institution. They said: "You undertook to nurse us. We paid you. The nurse in question was your servant, whom you employed to fulfil your contract with us; and, as a master is responsible for the servant's negligence in the course of the employment, you are liable for the consequences of the hot-water bottle." The answer made by the committee of the Home was: "We did not contract to nurse you. All we contracted to do was to supply a competent nurse; and that we (admittedly) did. As soon as the nurse entered upon her duties she ceased to be our servant, and became yours, subject to your orders and those of the medical attendant employed by you."

After a trial in Lancashire, the case was taken to the Court of Appeal; and the three Lords Justices unanimously held that the nurse was the servant of the plaintiff, and not of the institution. The tests they applied were—(1) To whose orders was she subject? and (2) Who could have dismissed her had she proved incompetent or disobedient? They found that the answer to both questions was—"The plaintiff." They also found that the contract between the plaintiff and the institution was merely that the institution should supply a nurse of adequate skill.

I would observe that this case does not necessarily mean that in no event can a Nursing Home be responsible for the negligence or default of a nurse. It all depends on the contract. If I apply to a Nursing Home and say, "I require to be nursed in my own home through an operation, will you undertake it?" and if the Matron of the Home does undertake it, and I leave the choice of the nurse entirely to her, with liberty to send one nurse one day and another another, then possibly the Home would be liable for the negligence of a nurse. The point is that where the contract is, "We undertake to supply a competent nurse," the nurse becomes the servant of the person engaging her services; and the Home is only liable if she is a person not of reasonably sufficient skill and training. But if the contract is, "We will nurse you through an illness," then the Home is liable if anything negligent is done during the nursing.

It follows from this reasoning that when a patient enters a Nursing Home, to be nursed through an illness or an operation, the proprietor of the Home is liable for the acts and defaults of the nurses. For in this case the nurses told off from time to time to attend on the patient act under the orders of the proprietor of the Home, and not of the patient or the patient's friends; the proprietor alone can dismiss them; and the proprietor alone can control them. In such a case the proprietor, on general principles of law, is responsible to the patient.

The like reasoning applies in the case of hospitals and infirmaries, where the nurse is merely a servant of the management.

The foregoing observations apply to ordinary cases of nursing through temporary illnesses or through operations and their *sequelæ*. There is another class of cases to be considered, namely, that of nurses engaged permanently, or indefinitely. A nurse who is engaged in this way becomes a domestic servant of the employer, just the same as a governess, or a housekeeper, or a steward. I am treating now of those nurses who are engaged to attend patients who are not sick in the ordinary sense of the term; but who are permanently feeble either in body or mind—paralytics, epileptics, the mentally deficient, the senile. In these cases the position of the nurse depends entirely upon the terms of her engagement; and a nurse who wishes to be treated other than as a servant (in the ordinary sense of the word) should stipulate accordingly when she takes the post.

2. **The term of a nurse's engagement.**—In the case of the permanent nurse last mentioned, the nurse should make her bargain expressly as to the giving and taking of notice to quit the post. Otherwise, in my judgment, she is only entitled to a month's notice (or wages in lieu of notice); and, on the other hand, must give a month's notice (or pay a month's wages as damages) if she desires to leave.

The temporary nurse is on quite a different footing. She is generally engaged "for the case," at the rate of so many guineas a week; and questions of notice rarely arise. A matter that does arise, in some instances, is this:—A nurse engages to nurse a patient through an operation, and its *sequelæ*. She believes, and no one else has any reason to expect anything different, that the whole business will be over in from two to three weeks, and she makes her arrangements accordingly—agreeing to accept another engagement three weeks ahead. But complications ensue. The trouble proves worse than the diagnosis; and at the end of three weeks the patient still requires the nurse's services. Can the nurse leave, and take up the case she had previously agreed to attend; or must she remain where she is? The answer to this question must depend on what the contract was. Was it, "I will nurse your wife through the operation and its consequential illness?" If so, the nurse must remain. Was it, "I will nurse your wife who is about to be operated on?" If so, then I think the nurse may go, after giving reasonable notice. A reasonable notice, in such a case, would, I think, be a week.

The importance of the point is manifest; for, in the supposititious case just given, if the nurse is bound to remain with patient No. 1, then she must break her contract with patient No. 2. In that case she is liable for damages; and those damages would be the difference between nurse's wages and the wages which patient No. 2 has to pay to another nurse engaged in a hurry. There is an alternative—the nurse may prefer to break her contract with patient No. 1, and go to attend No. 2. If she elects to take this course, she is liable to patient No. 1 in damages; namely, the difference between her (the nurse's) pay, and the pay which has to be given to another nurse hurriedly engaged. Again, if she leaves before the end of a week (I am assuming the contract is for so many guineas a week) she is not entitled to any pay for the part of the week.

A nurse should, in view of the doubts that may arise, and to save all trouble and annoyance, always be careful on this point. If she undertakes a case not as a weekly or monthly engagement, but as a case, and she has other engagements in the near future, she can avoid all possibility of trouble by saying, or, better still, writing, "I am willing to undertake to nurse Mrs. A. through her operation (or her illness), but I shall not be able to remain after the 10th of August." The engagement will then be to nurse Mrs. A. through her trouble up to the 10th of August, if the trouble should so long last.

In cases where a sick-nurse is engaged for an indefinite time—as is usually the case—the nurse is, on general principles, entitled to some notice of when her services will no longer be required. The notice she is entitled to is a reasonable one; and I think a week would be held to be the utmost that could reasonably be demanded. The week may begin on any day, irrespectively of the day on which the engagement began.

3. **Liabilities of a nurse.**—A nurse is liable for the consequences of her negligence.

The question is, What is negligence? The best definition is, "Negligence is the doing of something which a reasonably prudent person, having regard to the conditions, would not do; or the not doing of something which a reasonably prudent person would do."

In the ordinary case of Tom, Dick and Harry, of Sarah, Jane and Susan, the standard, though fairly high, is not exacting. For example, Tom and Sarah are not supposed to be persons of the greatest possible presence of mind, or of the utmost coolness in an emergency. If they should be travelling in a railway train; and the train comes into slight collision with some obstacle; and Tom and Sarah, panic-stricken, leap from the carriage window, and break bones in so doing, the people whose negligence caused the collision are responsible for the broken bones. Nor is it of any avail for them to urge that if Tom and Sarah had kept their seats and remained cool, no bones would have been broken. Tom and Sarah are only supposed to be ordinary mortals—susceptible of fear, as ordinary mortals are.

But the case of the nurse is not that of Tom or of Sarah. The nurse is not an ordinary mortal. She is a person professing superior skill. That is why she is employed. And the law is that when a person professes skill in any calling or any act, and is retained for that reason, then unless he displays the skill, he is negligent.

Suppose a woman who has had no proper training as a surgical nurse undertakes a surgical case (I assume she does not tell her employer of her want of training), and in the course of the business she, acting to the best of her ability, omits to do something which a trained surgical nurse would (or ought to) do—that is negligence.

Again, an ordinary person, in a moment of hurry and excitement, would be forgiven for making a mistake. Not so a person of skill. Thus, if Mrs. Brown is hurriedly sent for by her next-door neighbour, whose wife has been taken seriously ill; and the doctor, who is also sent for in a hurry, asks Mrs. Brown to prepare and apply a hot-water bottle to the patient while he flies to his surgery for a drug or an instrument, and Mrs. Brown, doing her best, but greatly excited, applies the hot-water bottle naked to the skin of the patient—I should say that Mrs. Brown could not be made liable for any consequences; not because she is not paid, but because she is not negligent. On the other hand, a nurse who did such a thing would undoubtedly be liable in damages. Why the difference ? Because Mrs. Brown is merely an ordinary person, and, as such, is likely to be unnerved at a crisis; while the nurse is a person who holds herself out to the world as being a person of nerve, skill and coolness, whose business it is to know and do the right thing in a sick-room, crisis or no crisis.

The opposite of negligence is diligence; and in the case of a nurse, diligence includes skill; and skill includes knowledge, dexterity, nerve, and coolness.

For want of these attainments and qualities a nurse is liable to be dismissed without notice and without pay; just as if I engage a chauffeur and mechanic to drive and attend to my motor car, I can summarily dismiss him if I find he cannot drive a car or cannot attend to the machinery.

In connection with this part of the subject, I should say that no nurse would be likely to be found negligent who followed the directions of the medical man in attendance.

A nurse's greatest temptation to be negligent (if I may put it that way) is when she is summoned to another case immediately after she has been attending an infectious patient. I have never known an instance in the courts where a nurse has been accused of negligence in this respect; but there was an action recently in which a medical man was sued for damages because he was alleged to have negligently attended a confinement while he was visiting another patient who was sick of an infectious disease. The doctor won the action, on the ground that he had done all that was usual and possible to disinfect himself, and had taken all proper precautions. I take it that a nurse who quitted an infectious case, and proceeded to attend another patient, to whom she conveyed the infection, would be liable for negligence unless she took the most complete precautions known to science to prevent herself from carrying the disease with her.

4. **Nurses in hospitals and public infirmaries** do not stand on the

same footing as private nurses. The terms of their engagements are usually set down in black and white; so there can be little question as to them. All I have to say about them is that they are liable to instant dismissal—even if it be not so expressed in the contract—for disobedience to orders, or serious misconduct; and also for a continued course of inattention to duty. One minor act of wrong is not enough. One serious act is. But a repeated course of minor acts will entitle the superior to dismiss the nurse on the spot.

5. In the case of **infectious diseases** (the Infectious Diseases Notification Act having been pretty generally adopted) the duty of notification may fall on the nurse in attendance. First of all, it is cast on the head of the family; next on the nearest relative present in the house, or in attendance on the patient; and only in default of these on other persons in attendance on the sufferer. The doctor usually does it; but the nurse is equally liable with him; and the fine is 40s. Just as in the case of notification of births, however, a nurse is entitled to be excused if she had reasonable grounds for thinking that one of the other people had done it. The Medical Officer of Health is the person to be notified, through the post or by a hand-delivered notice; and either at his house or his office.

6. **The law relating to Midwives.**—Since April 1st, 1905, no woman has been able to call herself a midwife unless certified under the **Midwives Act, 1902.** And not only is an uncertified woman forbidden to call herself a midwife, but she is also forbidden to use any name, title, or description implying that she is certified; or that she is recognised by law as a midwife; or that she is specially qualified to practise midwifery. As a lawyer would put it, she must not say she is a midwife, nor "hold herself out" as a midwife. The penalty for a breach of these prohibitions or any of them is a fine not exceeding £5.

Since April 1st, 1910, the disqualification has been even more complete. For not only is the assumption of the name of midwife prohibited; but no uncertified woman may "habitually and for gain attend women in child-birth otherwise than under the direction of a qualified medical practitioner"; and "any woman so acting without being certified" shall be liable to be summoned at a police court, and fined not more than £10. There are two exceptions—(1) legally qualified women doctors; and (2) "anyone rendering assistance in a case of emergency."

I call the attention of the reader to the guiding words—"habitually and for gain." It appears that there is nothing to prevent a woman practising midwifery gratuitously; nor is there anything to prevent one whom I might call a casual midwife demanding a fee for her services. Again, an uncertified person may both "habitually and for gain" attend cases of child-birth provided there is a registered medical practitioner in charge of the patient. The women aimed at by the Act are those Sairey Gamps who practise amongst the poor, and by whose ignorant unskilfulness hundreds of lives have been lost, and hundreds of mothers and children ruined in health.

There are other provisions of the statute. One is that no certified midwife shall employ an uncertified substitute. This is to prevent what medical men call "covering." Again, although the midwife is to be certified, she is not empowered to act as a substitute for a medical practitioner, nor must she pretend that she is; nor must she represent that she can grant a certificate of death or of still-birth; nor that she is capable of undertaking the charge of abnormality or disease in connection with parturition.

Who can claim to be certified? The second section of the statute deals with midwives existing at the date of the coming into operation of the Act (April 1st, 1903), and gave them two years (until April 1st, 1905) to become registered. But at the present time certificates can only be obtained from the Central Midwives Board, a mixed body whose members are nominated by the Royal College of Physicians, the Royal College of Surgeons, and other bodies. The Board has large powers—indeed, it has practically entire control over midwives in England. (The Act does not apply to Scotland or Ireland.) Its duties are (1) to issue certificates to midwives, who, when certified, have their names enrolled; (2) to cancel the certificates and strike off the roll the name of any midwife who is guilty of misconduct, or who breaks the rules of the Board; (3) to hold examinations; (4) to say what shall be a midwife's course of training; (5) to restrict, regulate, and supervise the practice of midwives.

Any woman struck off the roll by the Board has the right of appeal to the High Court of Justice within three months after the decision is notified to her; but she cannot go to the Court of Appeal if the High Court is against her.

The Board fixes the fees payable for examination and certificate; but the fee must not exceed one guinea.

The scheme of the Act further provides for local supervision of midwives by the councils of counties and county boroughs. The council may hear complaints or charges against a certified midwife; and if they think a prima-facie case is made out, they must report it to the Central Midwives Board. They must also report at once to the Board the name of a midwife convicted of any offence. They may suspend from practice any midwife in their area if they think it necessary to prevent the spread of infection.

In order to enable the local authority to keep an eye on the midwives in its area, it is the duty of every certified midwife, before commencing to practise or "holding herself out" (i.e. setting up her plate) as a practising midwife, to give notice in writing to the county or county borough council of her intention to practise in their area. In the first place, the notice is to be given to the local authority of the area where the nurse resides or usually carries on her practice. But as a midwife dwelling or usually practising in one county may quite easily be sent for into another —and that hastily—it is provided that such a woman may go, provided that within forty-eight hours of her beginning to practise outside her own registered area she gives written notice to the local authority of the area into which she has gone. A county council may delegate its powers over any district to the local district council; in which case the midwife must notify the district council. The penalty for omitting to give proper notices is £5 as a maximum; and for knowingly or wilfully making a false statement in a notice, it is the like sum.

It is a much more serious offence, punishable by imprisonment for not more than twelve months, for any woman to procure or cause to be procured a midwife's certificate by a false or fraudulent statement or representation.

It should be added that in all cases under this Act, where a woman has been convicted at a magistrate's court or police court, she may appeal to quarter sessions.

By the **Notification of Births** Act, 1907, an additional responsibility is cast upon midwives. It ought to be said that this Act does not operate in every place, but only in those local government areas which have "adopted" the Act by resolution. By "local government areas" I mean boroughs, urban or rural districts, and counties. A borough council, urban district council, rural district council, or county council may pass a resolution adopting the Act within its own area. Or, if the

Local Government Board think fit, the Board may declare that the Act shall have effect in any district. In the case of an adoptive resolution by the local authority, the Local Government Board must give its sanction to that resolution. As soon as the Act becomes effective in any district, it becomes the duty of the local authority to bring the fact to the notice of all medical men and midwives practising within the area.

Apart from the Act, the birth of a child must be registered within 42 days of its birth ; and still-borns are not registered at all. The day of birth does not count in the 42. The father and mother (mother only if the child is not legitimate) are bound by law to do this ; but if they do not, the occupier of the house where the birth took place ; each person present at the birth ; and the person having charge of the child, are under the **duty to inform the registrar of births** for the sub-district. The informant must furnish the following particulars :—(1) Date of birth ; (2) place of birth ; (3) name (if any) of child and its sex ; name of the father, and his rank, trade, profession or calling (N.B.—The name, etc., of the putative father of an illegitimate child must not be given by the nurse without his, and the mother's, consent) ; (4) name of mother, and her maiden surname. The informant must sign the information and add his (or her) address and description (e.g. if a man, trade, etc., and if a woman, "wife of —— ——," "Widow," or "Spinster." It is not correct for a nurse to describe herself as "Nurse," or "Midwife"). A nurse who has been present at the birth or who has had charge of the child may be required by the registrar to attend at his office and give him the required information, and sign the register. He must give her at least seven days' notice, and, further, he cannot ask her to come more than three months after the birth. If the birth is not registered within three months, the nurse may be called upon by the superintendent registrar of the district to give the required particulars. After twelve months the Registrar-General takes the matter in hand.

Now the Notification of Births Act goes beyond the mere duty of registering births. This duty is left untouched. The Act is intended to prevent an alleged practice on the part of mothers of illegitimate children and a certain class of women who profess to be nurses—the practice, namely, of suppressing the facts relating to illegitimate births. It has been stated that children are often born alive ; but are quietly "put out of the way," and then treated as still-born.

Wherever the 1907 Act is in force, **notice of every birth, still-born or otherwise,** must be given to the medical officer of the local government area whose governing body has "adopted" the Act. The first person, on whom is the primary responsibility, is the father, if he is actually residing in the house where the birth takes place at the time of its occurrence. But the duty is equally imposed on the doctor and nurse who are either in attendance on the mother at the time of the birth or come into attendance within six hours after.

The giving of the notice is not a very formidable affair. It must be in writing. It must notify the birth. It may be a letter or post-card (pre-paid) sent by ordinary post to the Medical Officer of Health; or it may be a notice delivered to the M.O.H. The Act does not say what particulars are to be given, but I should say all that is required is something like the following:—

To DR. STALWART, M.O.H. *Town Hall, Baffy-sur-Mer.*

I beg to notify you that a child was born here at 11.30 p.m. last night. Mother's name, Mrs. Axbister, wife of Mr. Axbister of this address.

(*Signed*) MARIA EDGWORTH.

35, *Lincott Road,*
Baffy-sur-Mer.
April 1, 1908.

Last of all, the notice must be posted within 36 hours of the birth; or, if sent by hand, delivered within 36 hours.

Penalties and excuses.—The penalty for failing to notify the birth is a fine not exceeding twenty shillings. But any person—the nurse, for example, who is summoned for not notifying a birth—is entitled, not of grace, but of right, to be let off if she can prove that she believed notice had been given by some other person. It will not do merely to say, "I thought the doctor had done it," or "I thought the father had done it." The nurse (if she be summoned) must be prepared to show reasonable grounds for her belief. If she can prove that she said to the doctor, "Will you notify the birth to the M.O.H., or shall I?" and he answered, "I'll do it as soon as I get home," that will do.

I have kept for the end of this part of the chapter its **most serious** provision. The notification, the Act says, must include "any child which has issued forth from its mother after the expiration of the 28th week of pregnancy, whether alive or dead." It is here that I see some loophole for evasion. It is not a mathematical certainty, in very many cases, that the mother has been pregnant for 28 weeks or more. In most cases an experienced medical man or an experienced nurse can tell the "less than seven months'" birth. And I take it that in a case where a nurse reasonably believed that the pregnancy was less than 28 weeks, and she failed to notify the M.O.H., she would not be convicted under the Act. But in many cases opinion will differ; and my advice to nurses is, "In case of doubt, notify."

Notification of the birth will not relieve the doctor and the nurse from their responsibilities connected with the **burial of still-born children.** A burial cannot, as a rule, take place without the production of the certified copy of the register of deaths. But a still-birth does not need to be registered, either as a birth or a death. Accordingly, special provision is made to provide for burials. The church-yard or cemetery authorities dare not allow a still-born child to be buried without one of three things:—Either (1) a coroner's order; or (2) certificate of a registered medical practitioner (this practitioner must either have been present at the birth, or must have examined the body); or (3) a declaration by some person who would, if the child had been born alive, have been required to register the birth. This declaration must state that no registered medical practitioner was present; *or* that he will not give a certificate; *and* that the declarant was present at the birth, *or* has examined the body, *and* that in her (or his) opinion the child was still-born.

In category (3) comes the nurse. In fact, midwives are frequently called upon to make these declarations. It is to be said that a nurse who has any suspicion of foul play should at once write to or see the coroner of the district. In no case should she allow herself to be cajoled into assisting in the burial of a child which died after its birth as if it had been still-born. A fine of £10 is the penalty.

To complete my exposition, let me give a similar reminder, though it may hardly be necessary, as to *concealment of birth, and abortion.* To commit the offence of abortion is a crime, punishable by penal servitude or hard labour. To assist to procure an abortion is equally punishable. And it is a crime, also, to conceal, or attempt to conceal, the birth even of a still-born child by secretly disposing of the body. Nurses are sometimes implored to try to help girls who are "in trouble." Whatever the motive, the proceeding is a most dangerous as well as reprehensible one. Occasionally, when the police wish to catch suspected abortioners, they send to them women who tell a story of seduction and the like, and ask for help out of their "trouble." It is to be said that to attempt to procure abortion by an instrument, or to supply a drug for that purpose, is equally a crime whether the woman on whom the attempt is made or to whom the drug is supplied is pregnant or not.

There is a great chance, too, that anyone who is foolish or criminal enough to be mixed up in an attempt to procure abortion may find herself on her trial for manslaughter, or even murder. For if the patient dies within a year and a day after the unlawful operation, as a consequence of that operation, all who took part or in any way assisted in the operation are guilty of murder. If the death takes place after a year and a day, it is manslaughter. There is nothing here to prevent a nurse from nursing back to health a patient suffering from the effects of such an operation, even if she (the nurse) knows what has taken place. The only guilt is in assisting, procuring, performing or helping to perform an abortion or attempted abortion.

CHAPTER III

TRAINING SCHOOLS AND OTHER NURSING INSTITUTIONS

By Lilian A. Maule

Choice of a Training School—Minimum Age—Training in Poor Law Infirmaries —Training in Small Hospitals—Forms of Application—Personal Interview —Health Qualifications—Preliminary Training—Pay—Training for Private Nursing—Uniform—"Times Off"—Duties of Probationers—Lectures and Classes—Examinations—Special Training—Fever Nursing—Mental Nursing —Midwifery and Monthly Nursing—Leagues—Lists of Nursing Schools at General and Special Hospitals in London and the United Kingdom Generally, and at Poor Law Institutions—Training Schools for Midwives and Monthly Nurses—Other Nursing Institutions.

The difficulties that beset the path of the would-be nurse in the present day are different indeed, in their nature and degree, from those that confronted her predecessors of the past. The early pioneers had little choice in the matter of "Training Schools," for there were none; they had to gain their knowledge where and as they could, a little here, a little there; they had to face positive physical hardships, such as are quite unknown to the modern nurse; there was often much opposition to be met on the part of their friends and relations; and they had to reckon, as an essential element in their professional life, upon grave demands upon their pluck, their powers of perseverance, and their health.

In these days it is hard to find a family which does not include one or more nurses amongst its members, and from being an underpaid occupation for women of the lowest classes, or a vocation for the highest class, it has become a fairly remunerative profession for the educated, offering perhaps a more easily accessible opening, at less initial cost, than any other branch of women's work.

It has already been shown by another writer (Chapter I.) that this

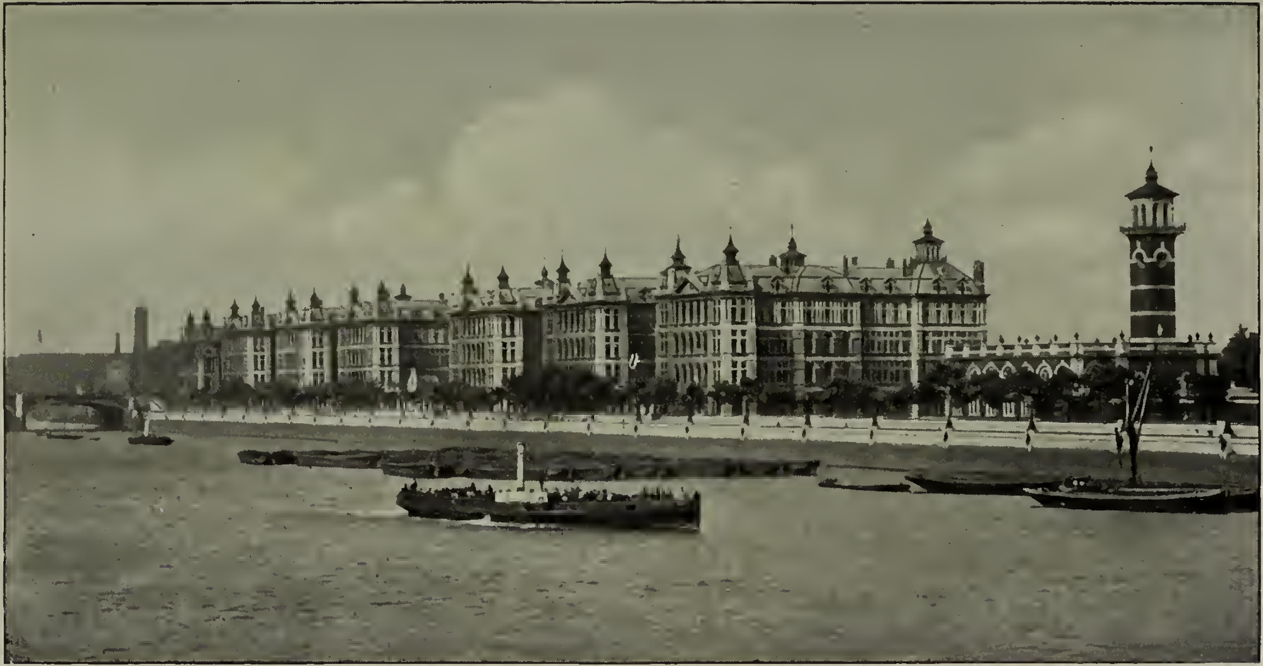


Photo: York & Son, Notting Hill, W.

PLATE III.—ST. THOMAS'S HOSPITAL, FROM THE RIVER.

development of the calling of a nurse has proceeded upon no organised lines. The great hospitals, as medical and surgical science have demanded more and more skill and knowledge in the tendance of the sick, have worked out, each one, its own plan for the improvement of the nursing, with no sort of co-ordination of principle, no cohesion between the workers; rather indeed on a system of competition, each institution hoping to attract to itself the best material, by the superior value of its certificate and the prestige of its reputation. Hence it follows that the applicant for training finds that the conditions upon which it is to be obtained vary very widely at different schools. While this is to be regretted in many respects, the fact presents one obvious advantage, that the field of choice in the matter of a Training School is a large one, and selection can be made to suit the individual circumstances of the candidate.

Choice of a Training School.—This choice of a Training School is of very great importance, for the success or failure of a nurse to obtain good work when her probationary days are over may depend upon the value of the certificate she holds.

For complete equipment in all the qualifications that are now demanded from candidates for the higher posts in the nursing world, such as the matronships of large and important hospitals, a woman must be prepared to devote a good many years to the work of preparation. Most of the larger hospitals now bind their probationers for terms of from three to four years, and a three years' certificate of training, in an approved hospital, is demanded by nearly all institutions and associations employing nurses. In addition to training in medical and surgical nursing, the fully qualified nurse must also manage to gain experience in many special branches of work: fever nursing, massage, midwifery (the certificate of the Central Midwives Board must be held by candidates for many appointments, especially foreign ones). All these have come to be part of the modern nurse's education. But she may find herself bound by a four years' agreement at a hospital where she will have little opportunity for qualifying in any special work. This means supplying the deficiency, at her own charges, and at the cost of a good deal more time, when her engagement is at an end. For her own sake inquiries should therefore be made as to the amount of training which is covered by the agreement. Some of the provincial hospitals are setting a very good example of progress in this respect by giving their nurses opportunities for qualifying in one or more special branches of their work during their engagement.

Granted that the would-be nurse possesses the necessary natural qualifications, and further, that she knows what she wants, the next point to determine is what she is prepared to give in return for her professional training. A considerable number of the hospitals pay their probationers a small salary after the first trial month, getting the *quid pro quo* in the extra years for which the probationers are bound to the service of the institution. Others require a premium, which the nurse gets back in salary, as it were; and others, again, require fees from the pupils during the entire course of their training. This is more usual at some of the provincial hospitals.

The first inclination of most women who intend to take up nursing is to enter at one of the large London Training Schools, whose reputation is supposed to be, and sometimes is, a passport to future advancement. But while a certain distinction attaches itself to the great Schools of Nursing, a little inquiry will discover that the training at the good provincial hospitals is by no means regarded as inferior by those really qualified to judge. The training at hospitals to which no medical school is attached has distinct advantages, in that a great deal of the practical work otherwise done by the students is in the latter case left to the nurses, who gain considerably in experience thereby. If the busy rush of the large London wards is absent, no less good work is done in the more peaceful atmosphere of the county hospital. And for the less strong and physically robust there is much to be said in favour of the latter as a Training School.

Intending nurses should note the fact that the Army and Navy Nursing Services require candidates to have trained in a hospital of over 100 beds, and that for other appointments a similar qualification may sometimes be exacted.

Minimum age.—A drawback which has serious weight with many women who have to earn their own living is the comparatively late age at which the work of nursing begins. Most girls who intend to join the army of workers have, like their brothers, to determine upon their choice as soon as, or even before, they leave school. But the large general hospitals seldom admit probationers, that is, those who wish to enter from the first for the full term of training, under the age of twenty-three. This is a concession made of recent years. Not so very long ago the usual age limit at hospitals was twenty-five. There is good reason for this age limit. The life of a nurse, even under the better conditions of to-day, must always be a strenuous one, and to many the inevitable night duty is a heavy strain. It is obviously better that this strain should not be put upon girls at an age when it might seriously affect their health in after life.

Paying probationers, who usually enter for terms of three months and upwards, are received a year or so younger, and at some of the children's and special hospitals the age limit is as low as twenty or twenty-one. This still leaves an interval during which many girls have to be supporting themselves, or at least beginning their preparation for so doing, and it is not everyone who can afford to devote the intervening years to the study of preliminary subjects, such as Anatomy and Physiology, an elementary knowledge of which is a great advantage to the new probationer when for the first time she finds herself in the hospital ward. It might be thought that a couple of years at a children's hospital, or at a cottage hospital, would be an additional qualification to the aspirant for admission at the larger institutions. But this is not the case, many Matrons and Superintendents of Nurses having a strong objection to receiving as probationers those who have had previous training on other lines. The intending nurse has therefore to face the fact that if she has to earn her own living from the start, she may have to bridge over some years at another occupation.

This is not the disadvantage it might appear to be at first sight. Some knowledge of the world, some understanding of social questions, some experience of other sides of life, are very necessary for the future nurse. Once hospital work has begun, its peculiarly absorbing nature is apt to exert a not altogether desirable influence, to which an unformed mind is naturally more susceptible. It is a frequent complaint that trained nurses are "so narrow," so given to "shop," as to be uninterested in the outside world. Anyone who has ever lived within the walls of a hospital, a little world in itself, knows how difficult it is to hold out against this narrowing influence, and will realise that the years between leaving school and beginning nursing training may most profitably be spent in some other employment.

Training in Poor Law infirmaries.—Excellent training is to be obtained at some of the Poor Law infirmaries. The old objection to Poor Law institutions was based on the ground that the cases were chiefly

" chronics " or aged people, and that the necessary experience in the nursing of cases of acute disease, or important surgical operations, could not there be so well obtained. This applied in the days when the sick wards were merely a part of the workhouse. Since the provision of separate buildings for the treatment of the sick, the case has been somewhat different. The demand upon the beds in the voluntary hospitals is so great that the tendency is increasingly to relegate to the Poor Law hospitals every case which inquiry shows to be suitable, and so it comes that now the proportion of acute and surgical cases in the large workhouse infirmaries is appreciably greater than it used to be, and, as with the provincial hospitals, the absence of medical students devolves upon the nurses much work usually given to the dressers. The certificates of the more important Poor Law infirmaries, such for example as, in London, Marylebone, which has always had the privilege of training a certain number of " Nightingale probationers," or, in the provinces, Birmingham, to name but two, have as good value as any. The presence in the wards of Poor Law institutions of many cases that require long-continued and very careful nursing is of decided advantage from the training point of view.

It should be noted, in passing, that the old-time custom of using the word " infirmary " to denote a hospital for the sick, having no connection with Poor Law, sometimes confuses those unfamiliar with it. In many county towns—Gloucester, Oxford, Bristol, to mention three well-known examples—the " infirmary " simply means the general hospital, " supported by voluntary contributions."

Training in small hospitals.—It will be found on looking through any list of institutions, that even the smallest of cottage hospitals undertakes to train nurses, and to grant certificates " upon satisfactorily completing engagement," which may be for one, two, or three years. The fact that no good appointments are to be gained in the future upon the strength of such training is now so widely known that vacancies in these small institutions are not in much demand, and the Matrons are being confronted with a difficulty which is increasing year by year. It is clear that the experience to be gained where the number of patients received is very small cannot be of much practical value, and in too many cases the woman who enters upon a term of training at such an institution finds herself at the end of her engagement in the position of having spent valuable time to little purpose. Her certificate is of no marketable value from the point of view of advancement in her profession, and it may even stand in her way should she then wish to enter a large hospital for extended training. Nursing experience of this description can only be properly turned to account by those who have no intention of taking up nursing as a profession, but who desire to learn something of the care of the sick by way of adding to their stock of useful knowledge, or as an aid in taking up other work. Those who dream dreams and see visions of an ultimately well-regulated and orderly system of organisation upon which the training of nurses will proceed, hope that this difficulty, which is now very seriously hindering the efficient administration of many small provincial hospitals, may presently be solved by some scheme under which the large and small hospitals would be grouped together for training purposes, the probationers and nurses being drafted from one to another, so that the utmost use might be made of the opportunities available.

Forms of application.—The candidate for admission to a Training School for nurses, having selected that one amongst the many which appears best to suit her individual requirements, should write to the Matron for a form of application, and for copies of the rules and regulations. These forms bear a strong family resemblance to each other, and the following may be taken as a fair example, though in each case differences will be found in the minor details of inquiry:—

TYPICAL APPLICATION FORM FOR PROBATIONER NURSES.

This Form to be filled in (in the Candidate's own handwriting) and addressed to the Matron.

1. Name in full and present address ?
2. Are your parents living ?
3. Home address ?
4. Age last birthday, date and place of birth ?
   (*Birth Certificate required which must be sent with this Form.*)
5. To what religious denomination do you belong ?
6. Height and weight ?
7. Where educated ?
8. Are you a Widow or Single ?
9. Your Father's occupation, or (if a Widow) your Husband's ?
10. Nature of late employment, when and why did you leave it ?
11. Present employment and reason for leaving ?
12. Have you had previous Hospital Work ? If so, state when, where, and for how long ?

13. The names and addresses of two persons (other than relatives) to be referred to?
State how long each has known you, and, if you have been previously employed, one of these must be your last employer.
14. Name and address of usual Medical Attendant? Date of last attendance and nature of illness? Have you consulted any other Medical Practitioner? If so, state his name and the nature and date of the illness.
15. Name and address of Dental Attendant?

I, the undersigned, hereby apply to be received for a month upon trial as a Probationer Nurse at ————————, and, if accepted, I will in all respects conform to the Rules and Regulations of the Hospital. I declare the above written answers to be correct.

Name ....

The *day of* 190

A personal interview is necessary before Application can be entertained.

Personal interview.—If the candidate is able to answer such questions satisfactorily, a personal interview with the Matron is the next step, this being required in almost every instance, except sometimes in the case of paying probationers. Miss Pringle, in that excellent little book, "A Study in Nursing," points out that "from her answers to these questions, from the quality of her letters, from the accounts given by her referees, and from the impression made by a personal interview, the Matron chooses or rejects her. . . . Different ideals exist—one Matron inclines to the scholastic type; another gives weight to social qualities; a third loves those of a practical turn, with indications of motherliness." For these latter reasons it may be necessary to apply to several hospitals before the chance of a vacancy is secured.

Nevertheless intending candidates, provided they *fulfil the conditions*, should never be put off making application at the best Training Schools merely because they hear that so many candidates are refused every year, and that the demand is so great that there is no chance of their obtaining admission. The Matrons are always glad to hear of the right women, and it is quite a mistake to suppose that a suitable applicant will have to wait so many months for a vacancy. It must be remembered that the rejected are the unfit, or, at least, the less fit, and the choice of thoroughly suitable and satisfactory probationers is never too large.

Health qualifications.—A vast amount of trouble and disappointment, trouble to busy Matrons, and disappointment to candidates, would be saved if the latter would exercise a little more thought before making application for admission as probationers, and would take the pains to acquaint themselves with the essential qualifications that must be complied with in every instance. Many are the laments of Matrons over precious moments spent in interviewing applicants who naïvely admit upon being questioned that they have, for example, chronic dyspepsia, or a tendency to flat-foot, or as one candidate plaintively said, "one shoulder had always been higher than the other, and she never knew what it was to be without a back-ache!" The medical certificate required from the candidate's own doctor is no matter of form. A clean bill of health is an absolute necessity, and certificates of re-vaccination, and generally now a certificate from a dentist as to a sound and good condition of teeth, are also required. After the preliminary trial, too, candidates have to pass the hospital medical examination. Hospital work is hard, and latent tendencies to physical weaknesses of various kinds are apt to make themselves apparent during the first few weeks of the unaccustomed work. The reasons for this particularity as to the physical fitness of candidates will commend themselves to anyone who stops to think.

Preliminary training.—The desirability of securing to a nurse-pupil some portion at least of that preliminary part of her education that can be given away from patients and outside the wards, before she enters upon the routine of ward work, is becoming very generally admitted, though only in a few instances has it yet been found possible to carry this into effect. At the London Hospital, at Guy's, and at the Royal Infirmary, Glasgow, notable examples of the success of this plan are to be found, and it is certain to be followed by other institutions before long. The advantage to the probationer, to her teachers in the ward, and to the patients is great, for she thus masters beforehand many of those elementary details ignorance of which is one of the "new pro's" most painful experiences during her first days in hospital. It is natural and reasonable that the expense of this preliminary education, at least to some extent, should be borne by the pupils. In hardly any other department of women's work can the learner expect to be trained free of cost to herself, and although it has hitherto paid hospital authorities to give free training, and even to pay their probationers from the first, in order that women of no private means, otherwise suitable, should not be debarred from taking up the work, it is evident that an ever-increasing number of women of good education will be found ready and willing to defray at any rate some portion of the cost of their education in a profession. On the other hand, it must be noted that some hospitals, which have in the past asked for premiums from their pupils, are now ceasing to do so.

This preliminary training, where given, is usually carried on in a separate home, and lasts about six weeks. The course includes instruction in Hygiene, Anatomy, Physiology, Cookery, Bandaging, etc. Some hospitals, St. Bartholomew's, for example, expect probationers to pass an entrance examination, which implies some knowledge of these subjects, to be gained by each pupil for herself. Evidence is required that she has received a fair education, and is generally intelligent, with "an elementary knowledge of—(1) the names of the bones of the skeleton; (2) the structure and mechanism of the following joints, *i.e.*, shoulder, elbow, wrist, hip, knee, ankle; (3) the general situation of the viscera of the thorax, abdomen, and pelvis; (4) the course of the circulation of the blood; (5) the names of the various parts of the alimentary canal; (6) the principal parts of the nervous system; (7) the composition of the air; (8) the structure and general use of thermometers; (9) the weights and measures and the signs and terms commonly used in prescriptions."

Pay.—The probationer may generally expect to begin to earn a few pounds a year, so soon as she enters upon her engagement, and all cost of board and lodging is borne by the hospital. Salaries range from perhaps £8, £10, or £12, the first year, to £20, in the third, and if retained on the staff after the years of training are over, this rises to £28 or £30. A good many hospitals require a small premium or guarantee fee, £1 1s., £5 5s., £10 10s., as the case may be, from their probationers. Some hospitals, again, ask no fee, nor do they pay their probationers anything the first year. Paying probationers, entering for periods which may vary from three months to one year, usually pay at the rate of £1 per week, which practically means that they pay for their board and lodging, and receive training in return. In old days there were considerable differences between the regulations for "lady pupils," as they were called, and the ordinary probationers, both as to promotion and as to certain privileges. This is now seldom, if ever, the case. All probationers, whether they pay or not, are on the same footing. Promotion is not granted to a nurse because she is a "lady pupil." But a good many women reasonably prefer to pay for their first three months, which leaves them at liberty to retire from the work if they do not find it congenial. Paying probationers are frequently transferred to the regular staff of ordinary probationers after one or more such periods of three months, if they so wish, and are found suitable. They are usually not required to take night-duty during these short periods.

If for any reason a probationer's engagement is broken after her agreement is signed, her premium, or some part of it, is forfeited.

Before leaving the subject of pay, it may be mentioned that the salaries of Sisters of large wards may rise to £40 or £50. Those paid to Matrons vary with the number of the beds and the importance of the institution. £300 per annum may be taken as the maximum, but £100 to £150 is considered a good salary.

Training for private nursing.—Many hospitals employ a staff of private nurses, and during the fourth year of their engagement the nurses are often expected to serve on this staff. There is a good deal yet lacking in the education of nurses for private work, differing as it does in so many important particulars and details from the work in hospital wards. The public might reasonably ask that some special attention should be paid to the instruction of the nurses who are turned out of the wards straight into private houses, there to gain experience at the expense of the patient, who pays heavily and often reluctantly for the privilege of being this educative agent. It is a matter not easy of solution. The atmosphere of a ward is so widely different from that of the private home, and the attributes which go to make a woman an excellent Ward Sister or Head Nurse would by no means be the most acceptable in the private nurse. Nurses who train at hospitals where there are paying wards have a rare opportunity of qualifying for private nursing, and it is unfortunate that more hospitals do not follow the example of some of the provincial hospitals, and in London of Guy's, St. Thomas's, and the Great Northern Central Hospital, with their much appreciated wards for paying patients.

Uniform.—In most hospitals, at least some portion of the uniform is provided by the authorities, but the official supply will seldom be found sufficient to cover all needs, and has generally to be supplemented by the nurses themselves. Before entering upon their trial month, probationers are required to provide themselves with the regulation cotton dresses, aprons, caps, collars and cuffs, made strictly after the patterns provided.

Outdoor uniform is much out of favour at the present time, and is seldom insisted upon. There is something to be said on both sides of this often debated question, but it is a fact sad to record that its present unpopularity amongst many good nurses is the disrepute into which it has been brought by some wearers. Now and again, seldom it is true, yet even so too often, one may see in omnibus, or train, or street the dress which should be associated with modest, self-respecting womanhood, worn in conjunction with a tousled head, a flaunting manner, and a loud voice, the owner possibly discussing "cases" in a manner which causes onlookers to pray they may never be so unhappy as to see that type of nurse near their own sick bed.

The regulations for the nursing staff at every hospital will be found to include directions about the way the uniform should be worn, with certain restrictions that nurses are apt to think not always reasonable as to the absence of articles of jewellery, and the method of hair-dressing. A moment's reflection will show any sensible woman that rings and chains are not suitable in their work, and that absolute neatness, simplicity, and conformity to the accepted custom of each institution is a rule that must be stringently enforced. Lord Knutsford, the Chairman of the London Hospital, in giving the nurses a "Talk" on a memorable occasion, went so far as to say, with reference to over-elaborate arrangement of hair, that "no good nurse overdresses her hair," and that "when a nurse is seen with her hair done like a barmaid you may know for an absolute certainty that that nurse is not a good nurse."

"Times off."—In this respect the last few years have witnessed a great improvement, and now a very fair amount of time for recreation is allowed at most hospitals. High-water mark is reached with a daily four hours off duty, a half day a week, a whole day once a month, and three weeks' to a month's annual leave. Very few hospitals have a sufficiently large staff to make this liberal allowance possible, but some daily time off is the rule at all well-managed institutions. Out of this, it must be remembered, has to come time for study.

The following may be taken as a specimen of a daily time-table:—Breakfast at 6.30, on duty 7 o'clock. Half an hour is allowed for "dressing" after the heavy early morning work. Dinner from 12 or 12.30 to 1.30. In most modern hospitals two to three hours off daily are given during daylight hours, with sufficient time for early lunch and tea at convenient hours. Supper, 9.30; bed, 10.30. Night nurses "breakfast" at 8.50, are on duty from 9.20 p.m. to 9.20 a.m.; they have dinner at 10 a.m., and are off duty from 10.30 a.m. to 1 p.m.

Duties of probationers.—St. Thomas's Hospital was chosen by Miss Nightingale for the establishment of the "Nightingale Fund" training school for nurses, to which, as has been shown, she devoted the money subscribed by a grateful country for her work in the Crimea. It is evidence of her extraordinary far-sightedness, and the completeness of her grasp of what sick nursing ought to be, that the regulations formulated then (1860) under her special influence, after these progressive years that have passed since that day, still remain perhaps the last word in nursing ethics. "Nightingale nurses" have helped to mould many Training Schools since then, and the requirements of the "Nightingale Fund" are found, often intact, or more or less embodied in the existing regulations of countless hospitals. The duties of the probationer under the "Nightingale Fund" are laid down as follows:—

You are required to be

SOBER.
HONEST
TRUTHFUL.
TRUSTWORTHY.
PUNCTUAL.
QUIET AND ORDERLY.
CLEANLY AND NEAT.
PATIENT, CHEERFUL, AND KINDLY.

You are expected to become skilful—

1. In the dressing of blisters, burns, sores, wounds, in applying fomentations, poultices, and minor dressings; in the administration of subcutaneous injections.
2. In the application of leeches, externally and internally.
3. In the administration of enemas for men and women, and the use of the catheter for women.
4. In the management of trusses, and appliances in uterine complaints.
5. In the best method of friction to the body and extremities.
6. In the management of helpless patients, *i.e.*, moving, changing, personal cleanliness of, feeding, keeping warm (or cool), preventing and dressing bed sores, managing position of.
7. In bandaging, making bandages, rollers, lining of splints, etc.
8. In making the beds of the patients, and removal of sheets whilst patient is in bed.

9. You are required to attend at operations.
10. To be competent to cook gruel, arrowroot, egg-flip, puddings, drinks for the sick.
11. To understand ventilation, or keeping the ward fresh by night as well as by day ; you are to be careful that great cleanliness is observed in all the utensils, those used for the secretions as well as those required for cooking.
12. To make strict observations of the sick in the following particulars :— The state of secretions, expectoration, pulse, skin, appetite ; intelligence, as delirium or stupor ; breathing, sleep, state of wounds, eruptions, formation of matter, effect of diet, or of stimulants, and of medicines. To "take" the temperature, pulse, respiration.
13. And to learn the management of convalescents.

The actual rough work performed by the nursing staff in hospital is very much less than it was even a few years ago, though some people think too much time is still spent by probationers in the rubbing and polishing of brasses, etc. Ward-maids do most of the cleaning, though the due instruction of the probationers in every detail of domestic work must always be a part of their education. Nurses at most hospitals are required to make their own beds, and dust and keep strictly tidy their bed-rooms. For this purpose a short time is allowed during the course of the morning's work. Many "new pro's" are apt to think there is a great deal of unnecessary "fussing" over this matter of tidiness, but a well-known Matron points out to her nurses that utter confusion must ensue in institutions if each member of the staff fails to be absolutely punctual and orderly. If a nurse is found untidy in her person, and in her own room, confidence will be lost in her capacity as a nurse; for how can a woman be neat and orderly in her work if she is not so in her personal habits ?

Lectures and classes.—Theoretical instruction is given to probationers by means of lectures and classes, the former usually divided into three courses, one on Nursing, by the Matron, and the other two on Medical and Surgical Nursing, by members of the Medical Staff. Classes for bandaging and other practical details of the work are held by the Sisters, or Assistant-Matrons. A course of instruction in cookery is very generally given. The following sample syllabus of three sets of lectures shows to some extent the ground covered. Complaints are made, not unfrequently, of the amount of theoretical knowledge which is now expected of nurses, and members of the medical profession are supposed to see in the modern trained nurse a rival to the doctor. But it is a curious fact that it is the medical instructors of nurses who are apt as a rule to push forward the theoretical side of their teaching, often, both in lectures given, and in examination questions set, requiring knowledge from their pupils that may sometimes fairly be said to go beyond the domain of the nurse. It is true, at the same time, as one medical writer for nurses has lately said, that thoughtful women, who wish naturally to know the reasons for the treatment they are carrying out under the direction of the doctor, not to work as mere machines, are those who most clearly recognise the line that divides the duties of the nurse from those of the medical attendant.

SPECIMEN COURSE OF LECTURES ON GENERAL NURSING

1. The distinction between the work of Doctors and Nurses. What training is and the personal qualifications desirable for a Nurse.
2. The Nurse's part as an active agent in carrying out "rest," when employed as a means of treatment, bed-making, washing and nursing helpless patients.
3. The employment and applications of cold and heat.
4. Prevention and management of bed sores. Accident cases.
5. Management and nursing of sick children.
6. Theatre work—nursing operation cases.
7. System of observation of the sick to be cultivated by trained nurses. Special reports.
8. Nursing infectious illnesses.

Bandaging will be taught in Classes.

SPECIMEN COURSE OF LECTURES ON MEDICAL NURSING

1. Introduction.
   Brief outline of the Physiology of the Body.
2. The Digestive system. Digestion.
   Foods, natural and artificial. Alcohol.
3. Disorders of the Digestive system.
   Feeding of the sick. Feeding of infants.
   Enemata.
4. The Heart. The blood and its circulation. The pulse.
   Diseases of the heart and circulation.
   Nursing in diseases of the heart.
5. The Lungs. Respiration.
   The air. Ventilation.
6. Diseases of the Lungs.
   Nursing in diseases of the lungs. Open-air treatment.

7. The temperature of the body.
    Fever. Thermometers. Temperature charts.
    Baths.
8. Diseases of the Kidneys.
    Examination of the urine.
    Nursing in diseases of the kidney.
    Skin eruptions.
9. Infectious Diseases. How Spread. Special dangers of each.
10. Nursing in infectious diseases.
    Disinfection of clothes, rooms, etc.
11. The Nervous System. Sensation and motion.
    Fits. Paralysis. Coma. Delirium.
    Nursing of nervous diseases. Weir Mitchell treatment.
12. Emergencies. Cases of poisoning, etc.
    Signs of impending death.

SPECIMEN COURSE OF LECTURES ON SURGICAL NURSING

1. Introduction—Elementary Human Anatomy.
2. Bones and Joints and their arrangement. Rickets.
3. Injuries—Fractures and Dislocations—their treatment and nursing.
4. Brief Anatomy of Muscles—Arteries, Veins, Capillaries, Lymphatics, Massage.
5. Wounds—Hæmorrhage and its arrest. Healing. Complications. Inflammation. Sepsis. Burns and Scalds—their nursing.
6. Antiseptics. Dressings. Instruments, their Sterilisation.
7. Operations—preparation for, and after treatment. Aseptic and necessarily Septic Operations. The "Field of Operation."
8. Surgical Diseases and their Nursing :—Inflammation, Abscess, Cellulitis, Gangrene, Ulceration, Pyæmia, Fistula.
9. Specific Diseases, *e.g.*, Tuberculosis, its treatment. General Hygiene. Operations. Sinuses. Tuberculosis of Spine. Erysipelas. Tetanus. .... Tumours.
10. Anatomy of mouth and throat. Operations on tongue and cleft palate. Tracheotomy.
11. The Thorax. Respiration. Nursing of Fractured Ribs and Breast cases.
12. The Abdomen and its contents. Injuries and their special risks. Peritonitis. Hernia. Abdominal Operations. Intestinal Obstruction.

Examinations.—This is an age of examinations, and nursing is no exception to the rule. Every hospital of repute has examinations for its nurses during their training. This of course implies examination in the practical part of their work, as well as in their theoretical knowledge. Test of technical skill is naturally essential before a certificate of efficiency can be granted. Even given the personal qualities which make a woman a good nurse, if she be unable to give simple proof of having assimilated the instruction given during a course of years, it is clear that she cannot attain the standard which alone can justify an institution to hall-mark her as "trained."

Hospitals have usually conducted their own examinations for nurses, but the superior value of an "independent examination," carried on by outside examiners, with no possible bias in favour of the candidates, is gradually establishing itself, and many large Training Schools now invite independent examiners to test the knowledge of their pupils, a very much better plan. Now, also, the Royal British Nurses' Association holds examinations, both in London and the provinces, and grants its nursing diploma to successful candidates.

It may be useful and interesting to give samples of the questions which nurses are expected to answer, taken from papers kindly supplied from one of the best known Training Schools.

PRELIMINARY EXAMINATION FOR PROBATIONERS

1. Give some account of the principles of conduct which should actuate a nurse in her relations to—
    (1) The patient,
    (2) The doctor,
    (3) Her fellow-workers,
    (4) And as regards HERSELF.
2. Describe the various ways in which nurses, in their daily work in the wards, can help in preventing wasteful and unnecessary expenditure of the hospital funds.
3. Give a description of the practical details relating to the application of—
    (1) Poultices.
    (2) Leeches.
    (3) Blisters.
4. Describe the chief points in the routine duties of a nurse in attending to any case of injury or disease which entails helplessness and long confinement to bed.
5. Supposing that you are in charge of a patient at a private house who has to undergo an operation on the following day; describe the chief points which would have to be attended to in preparing—
    (1) The patient.
    (2) The room.

SECOND PRELIMINARY EXAMINATION FOR PROBATIONERS

1. (1) State and explain the terms commonly used in the classification of wounds.
    (2) Describe briefly the natural processes by which the healing of wounds is effected.

(3) Explain the circumstances and conditions which may tend to help or hinder these processes.

2. (1) Define what hæmorrhage is.
   (2) Explain how nature tends to arrest hæmorrhage—first temporarily, and then permanently.
   (3) Explain also how nature may be aided by treatment.
   (4) Explain what a tourniquet is, when and how it should be used, and in what cases it should *not* be used.
3. Describe—
   (1) How you would prepare a patient for an operation involving the opening of the abdomen, and—
   (2) The chief points in the after-nursing of such a case.
4. Describe the chief points requiring attention—
   (1) In the nursing of a case of severe spinal injury.
   (2) In the nursing of a case of severe injury to the head.

WRITTEN EXAMINATION FOR PROBATIONERS

1. (*a*) In what parts of the digestive tube and in what manner are the different food-stuffs altered in digestion ?
   (*b*) What forms of food and drink are specially *un*suitable in the following :—
   Kidney Disease ; Diabetes ; Young Infants ; Typhoid Fever ; Gastric Ulcer ?
   Give any explanation you can as to the reasons why the special article of diet is unsuitable in each.
2. What are the duties of the Nurse in respect to the prevention of infection in :—
   (*a*) A case of Typhoid Fever ?
   (*b*) A case of Tuberculosis of Lungs ?
   (*c*) A case of Diphtheria in which Tracheotomy has been performed ?
   (*d*) A case of Scarlet Fever ?
   Give full details in each case.
3. (*a*) What is the composition of the air ?
   (*b*) How is it altered in the processes of respiration ?
   (*c*) Give an account of the structure of the Lung.
   (*d*) Mention the special duties of the Nurse in a case of Acute Lobar Pneumonia.
4. (*a*) How are fractures classified ?
   (*b*) What signs indicate a fracture ?
   (*c*) How do the broken bones unite ?
   (*d*) How would you render first aid in a case of fractured rib in which the patient is coughing up blood ?
   (*e*) How would you propose to carry out the nursing of a case of fractured femur in an old person, and with what ends in view ?

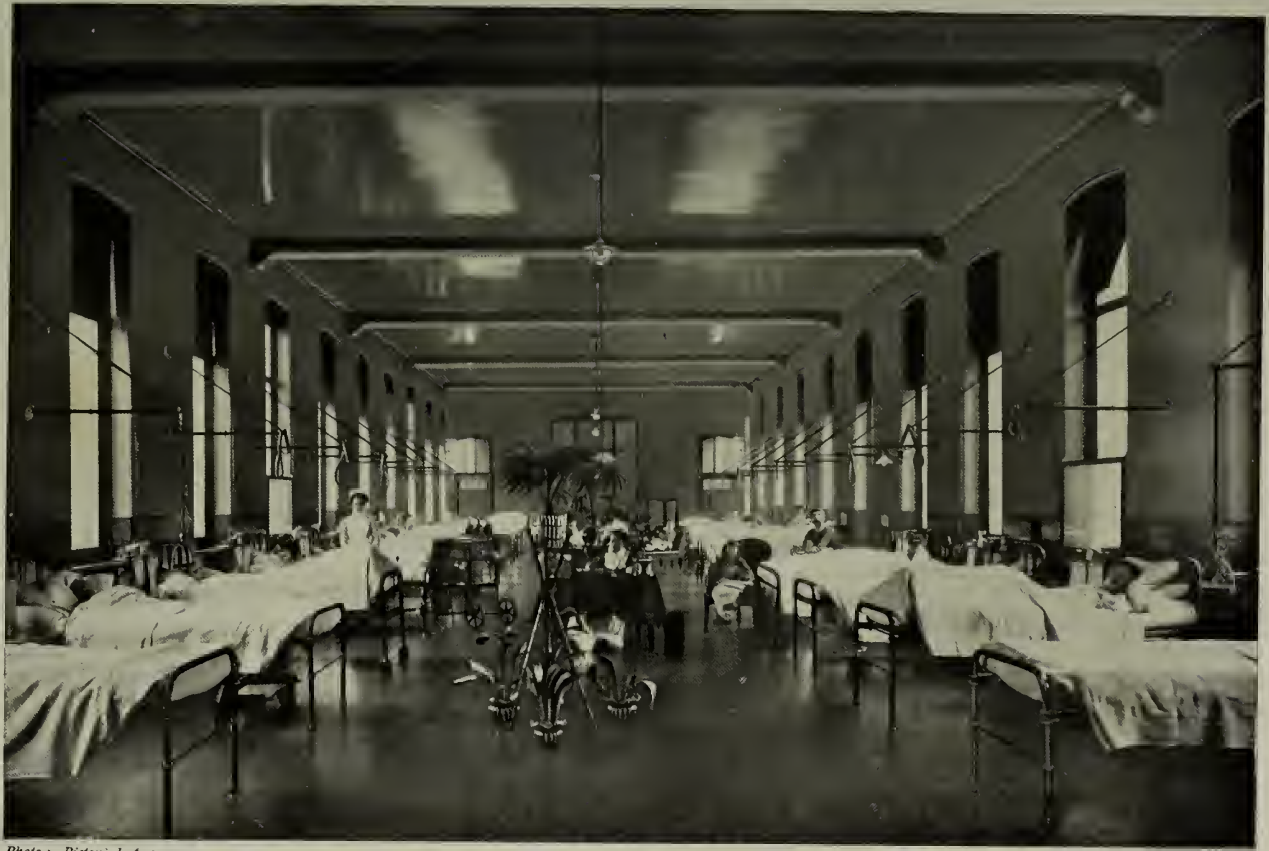


Photo: Pictorial Agency.

PLATE IV.—A WARD IN THE GENERAL HOSPITAL, BIRMINGHAM.

5. (*a*) What are the immediate dangers of burns ?
   (*b*) What are the later complications ?
   (*c*) How would you render first aid in a severe case ?
   (*d*) What are the more important points in the nursing of a severe case ?
6. What are the causes and nursing points with regard to the following conditions :—
   (*a*) Sleeplessness ?
   (*b*) Bedsores ?
   (*c*) Delirium ?
   (*d*) Hæmatemesis ?
   (*e*) Hyperpyrexia ?

Besides the written papers probationers also have to pass *vivâ voce* and practical examination.

Special training.—Probationers are taken for training at many special hospitals. These include Children's Hospitals, Hospitals for Women, Hospitals for a variety of special diseases, such as paralysis, skin diseases, infectious fevers, and so forth. Many nurses trained in general nursing are glad to qualify in these special branches of their work, especially if they intend to take up private nursing. Information as to terms, etc., should be obtained from the Matron in each case.

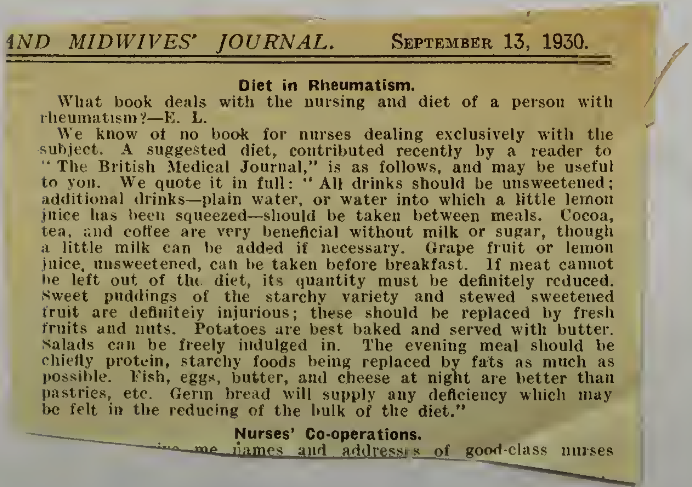
Provision is now made at several general hospitals to ensure to their nurses special training during the course of their three or four years' engagement. At the Royal South Hants County Hospital, Southampton, for instance, during their three years' training all nurses have the opportunity of getting six months' special training in one of three subjects at institutions affiliated with the hospital—fever nursing, massage, and ophthalmic nursing. At the Royal Infirmary, and at the General Hospital, Bristol, nurses have opportunities of going in for their midwifery training and the Central Midwives Board examination ; and at the Chester General Infirmary similar facilities for Massage and Fever Nursing are given. There is now a School of Massage and Electrical Treatment at the Hospital for Epilepsy and Paralysis, Maida Vale, W.

Fever nursing.—The London Fever Hospitals, with one exception, to be mentioned presently, are under the control of the Metropolitan Asylums Board (Offices, Victoria Embankment, E.C.). The small-pox hospitals at Dartford are also under the Board. Country hospitals for infectious diseases are managed by the local Councils. The posts of Charge or Head Nurses are held by nurses already trained in general nursing, and there are usually two classes of "assistant nurses," those who have already had a limited amount of previous general training, and those who have had none. The particulars of the requirements of the Metropolitan Asylums Board will be found in the appended lists of hospitals (p. 83), and may be taken as typical. These hospitals are all rate-supported. The only other Fever Hospital in the Metropolis, the London Fever Hospital, Islington, is maintained partly by voluntary contributions, partly by patients' payments.

Mental nursing.—Although to minister "to a mind diseased," with any hope of effecting a cure, must of necessity need the most carefully selected nurses, well trained in the study of brain disorders, this fact has only been recognised of comparatively late years. The attendants, both men and women, who used to be employed in our hospitals for the insane were too often eminently unfitted for their work; asylums have indeed been regarded "as places where unskilled labour may find a congenial outlet for its energies." The efforts of the Asylums Workers' Association, which requires that its members shall pass the examination of the Medico-Psychological Society, and the last-named body itself, have done much to promote improvement and raise the standard of education and training amongst the attendants.

The equipment of the fully trained nurse cannot be considered complete without some experience in mental nursing, yet that is seldom obtainable. The Nurses' Co-operation, the most successful of all private nursing institutions, requires that the nurses it employs for mental cases shall hold the certificate of the Medico-Psychological Society. Then, again, the training of the asylum nurse, who may have the care of physically sick patients, is clearly inadequate without experience in general nursing. It is not, however, regarded as an essential qualification at most asylums. The whole condition of asylum nursing—we are only concerned here with female nursing—is at present unsatisfactory, and women of the right sort are much needed to throw themselves into the work; it is an open field.

As another writer has pointed out (Chapter I.), the Northampton Asylum, Berrywood, was the first institution of its kind in England to train and give certificates to its nurses, the training comprising a period of three years, the whole time to be spent in the asylum, examinations held at the end of each year, and a complete course of lectures given, the practical instruction including first aid in emergencies and general nursing duties. The Metropolitan Asylums Board has a number



AND MIDWIVES' JOURNAL. SEPTEMBER 13, 1930.

Diet in Rheumatism.

What book deals with the nursing and diet of a person with rheumatism?—E. L.

We know of no book for nurses dealing exclusively with the subject. A suggested diet, contributed recently by a reader to "The British Medical Journal," is as follows, and may be useful to you. We quote it in full: "All drinks should be unsweetened; additional drinks—plain water, or water into which a little lemon juice has been squeezed—should be taken between meals. Cocoa, tea, and coffee are very beneficial without milk or sugar, though a little milk can be added if necessary. Grape fruit or lemon juice, unsweetened, can be taken before breakfast. If meat cannot be left out of the diet, its quantity must be definitely reduced. Sweet puddings of the starchy variety and stewed sweetened fruit are definitely injurious; these should be replaced by fresh fruits and nuts. Potatoes are best baked and served with butter. Salads can be freely indulged in. The evening meal should be chiefly protein, starchy foods being replaced by fats as much as possible. Fish, eggs, butter, and cheese at night are better than pastries, etc. Germ bread will supply any deficiency which may be felt in the reducing of the bulk of the diet."

Nurses' Co-operations.

me names and addresses of good-class nurses

Appointments.

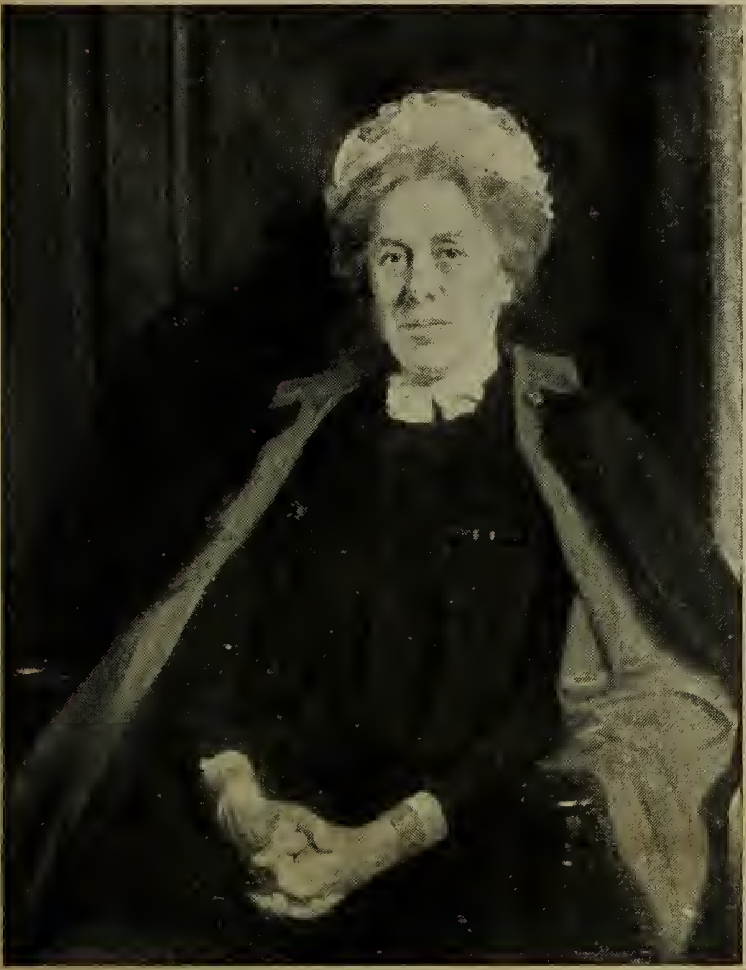
BARNSLEY COUNTY BOROUGH.—Miss D. Willard has been appointed health visitor and school nurse. She was trained at the Royal Salop Infirmary, Shrewsbury, and St. Mary's Hospitals, Manchester. She has been temporary health visitor at Brighouse.

BLACKBURN COUNTY BOROUGH.—Miss D. Goodman has been appointed health visitor. She was trained at Queen's Park Hospital, Blackburn, and Liverpool Maternity Hospital, and has taken a course as pupil health visitor.

BRISTOL, HAM GREEN FEVER HOSPITAL.—Miss K. Baldwin, S.R.N., has been appointed matron. She was trained at Willesden Isolation Hospital, and the Royal Berkshire Hospital, Reading, and saw

The Summer Exhibition at Burlington House.

AN ACADEMY PORTRAIT OF MISS LLOYD STILL.



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Miss Lloyd Still, Matron of St. Thomas's Hospital.

LAST Monday Burlington House opened its doors to the public for the hundred and sixty-fourth summer exhibition of the Royal Academy, and the merits of the respective pictures will since have been providing one of the chief topics of conversation at most London dinner tables! So far as nurses are concerned, however, there is no doubt that the "picture of the year" is the portrait of Miss Lloyd Still, the matron of St. Thomas's Hospital, which has been painted by George Harcourt, R.A., and is destined, we suspect, to hang in the hospital. Every nurse who visits the Academy will be interested in this picture of a great matron, for Miss Lloyd Still is famous not only in her own hospital, but, one might say, throughout the world. Those who know her personally will, I think, agree that the portrait is a very human and excellent likeness. The canvas is a fairly large one, and Miss Lloyd Still is shown seated against a panelled background—it might well be one of the walls in the reception room of the Nightingale Home, which are panelled in this fashion. Her hands are lightly folded in her lap, and she is wearing her customary hospital clothes —the white frilled cap, the navy blue frock and dark cloak, which has been thrown back to show a glimpse of the scarlet lining, while on her breast is the ribbon of the Royal Red Cross. The picture hangs in Gallery 3, in company with many other notable portraits. Chief amongst them is the full-length picture of the King, which Harrington Mann has painted for the Junior United Service Club. Many people, however, will like better Frederick Elwell's portrait of His Majesty in Gallery 2, for the warmer tints here help to make it a more mellow and pleasing likeness.

Another royal portrait is that of the Queen by David Jagger in Gallery 4. This is a regal picture showing Her Majesty in a beige satin gown and crimson velvet wrap richly collared with sable. The colour of her wrap is repeated in a ruby and diamond brooch and ear-rings, and she wears three ropes of pearls. There is also a delightful study of Princess Elizabeth from the brush of Edmond Brock. Painted in a manner reminiscent of Romney, this picture shows the little Princess seated in what appears to be a wooded glade. Her golden curls and simple white frock stand out against the dark background. One tiny blue slipper peeps out from under the hem of her frock, and her right hand caresses the head of a favourite puppy.

Sea and Sunset.

There are many other portraits of distinguished people by distinguished artists, but the most noteworthy among them are probably those by the late Sir William Orpen, all of them showing that well-known artist at his best.

For the rest, there are several of the cool, shadowed interiors, for which L. Campbell Taylor is so justly famous, six of the wonderful sea-and-sunset paintings of

Julius Ollson, and several of the sunlit landscapes of Lamorna Birch. One gallery (No. 8) is devoted almost entirely to the panel pictures which will have their home in the Bank of England. They form an imposing array and are, indeed, extraordinarily interesting. In addition to portraits of the most prominent officials of the Bank, there are scenes in the daily life of "the Old Lady of Threadneedle Street"—a director announcing the bank rate to the chief officials, the weighing of gold, the arrival of the guard, and so on. One interesting panel shows the new Threadneedle Street courtyard being built; another has in it a group of the actual artists who have painted the panels, for, although they match as cleverly as if they were all the work of one man, quite a number of famous artists have really had a finger in the pie. By one door of the Gallery stands a model of the great hall of the Bank showing miniature replicas of the pictures hanging on the walls.

Another picture which deserves special mention is the "Conversation Piece" by H. James Gunn, where three famous men (Hilaire Belloc, G. K. Chesterton, and Maurice Baring) are shown grouped round a small table in animated conversation.

This year a certain amount of space has been allotted to purely "modern" paintings, and even those who do not care for what is known as "modern" art will find the selection shown on the walls of the Academy very interesting. It is rather surprising to find in this category two pictures by that noted R.A., Glyn Philpot, who shows an amazing study called "Angel Ascending" in tones of blue and grey with streaks of lightning in the background. The most haunting picture in the collection is called "The Raising of Lazarus," by Richard Sickert. The body of Lazarus lies wrapt in its grave clothes, and from a dark, mysterious background emerges the partly shadowed figure of Christ, who takes the head of Lazarus between His hands. The picture has a curious intensity which cannot be explained in words, and must be seen to be appreciated.

The exhibition will remain open until August 6th, hours of admission being from 9 a.m. to 7 p.m. The entrance fee is 1s. 6d., or a season ticket is 5s. E. M. P.

RECENT RESEARCH INTO RHEUMATISM.*

Acute rheumatism in children is a dangerous disease, and it presents a problem so difficult that it takes years to grasp it. There can be no turning back on this difficult road, but rather a continuous struggle. However slow the progress, we must still push forward.

The complexity of the problem is that there is no agreement as to the exciting cause. I think I am, however, justified in saying that it is an infection, though we cannot yet prove the cause of acute rheumatism. Tests are being made, and the microbe is being searched for continuously. What we have also to consider is what is the primary or exciting cause of the disease? Imagine the following circumstances in the life of an adult. He is crossing the road in an east wind, going to his dentist; he is worried and in debt. He hears the bray of a motor horn and finds himself waking in hospital. The motor car is now the primary cause; the secondary cause of the accident was the man's own preoccupied and worried state of mind. He walked as in a dream. So with rheumatism—the primary cause is the infection, the secondary cause the conditions which make the body liable to this infection. I have a theory that sudden changes in atmosphere are very important—sudden warmth changing to a cold wind, and so on. This is a theory which I wish was incorrect, since no medical man can control the tendency of the weather to sudden changes. I think, also, that acute rheumatism is to some extent hereditary, but, after all, we cannot say that any family is free from hereditary diseases, and some risks must be taken. Someone must marry someone! Life in the city is also more likely to produce the disease than rural conditions, especially if the town is damp or low lying. The building of gimcrack houses, which are cold, damp and draughty, is also very heavily to blame.

Hard to Diagnose.

We now come to the age incidence of acute rheumatism. It is often developed before the fifth year of life, and this is important, because it is hard to diagnose if it is not clearly recognised in how young a child it may be developed. Undoubtedly errors in feeding and management produce a state of susceptibility to the disease, though it is hard to prove that the onset is due to any special form of ill-health produced by bad feeding.

Some diseases happily leave us protected and immune against further attacks. In these cases a change takes place in the general constitution of the body which creates the immunity. Others, unhappily, leave an altered state which makes us more liable to contract the disease again. The poison leaves a more open condition to infection. Is this sensitiveness dependent on the microbe or on the constitution? Can we prevent this sensitiveness? Can we protect the body against it? These are the questions which we want to learn to answer.

Occasional Disaster.

Many children have repeated attacks of rheumatism, each more severe than the last. We try to build up their constitutions in order to help them to resist the disease, but often we do not succeed. An attack of sore throat may be followed by acute rheumatism, and it may be traced to the tonsils. If the tonsils are taken out, however, the attacks may still persist. It is possible to have a sore throat without any tonsils. If we were to take out the tonsils as a general rule we should get the following results. In all human undertakings occasional disaster must occur, and we might find that a child would die from the operation who had never had, or never would have, acute rheumatism, while another child might succumb who would have continued to have rheumatism in spite of the loss of the tonsils.

We find that after a child has had tonsillitis the symptoms of acute rheumatism may appear after a pause of some ten days. What has happened? This is another matter for research.

It must not be thought that all children who have had acute rheumatism, even followed by heart disease, are crippled. Many are doing good work in light, skilled occupations to-day. They must, however, be in the hands of skilled doctors and nurses and kind lay helpers in order to flourish. In the research into acute rheumatism there is no blowing of trumpets, no waving of flags. The good results, when we get them, are our quiet reward. The public does not care so much for these successes as for the result of the Final Cup Match, but every day useful lives are being saved. Our delight in the children restored to health and to happy, if restricted, lives is sufficient reward. The greatest difficulties in our way to success are our climate and the nerve strain of town life.

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* Summary of a lecture given at the Nursing Exhibition by F. J. Paynton, M.D.

of asylums under its management. County asylums are under the management of County Councils. Applications for particulars of terms of service should be made to the Matron or the Medical Superintendent.

Midwifery and monthly nursing.—Training in midwifery and monthly nursing can be obtained either at the large lying-in hospitals, such as Queen Charlotte's, or at other Training Schools, approved by the Central Midwives Board, or by private tuition, when courses of instruction by "approved" teachers must be attended, and practical work done in the district, under the supervision of an "approved" midwife. Approximately speaking, the cost of training in midwifery varies from about £35 for a full hospital course, to £18 for a three months' district training, these sums including board and residence.

As a result of the passing of the Midwives Act, 1902, every person calling herself a midwife (in England and Wales) must hold the certificate of the Central Midwives Board, examinations being held every two months in London, and somewhat less frequently at certain provincial centres.

It is now usual, and highly desirable, that women going in for monthly nursing should not content themselves with a certificate for that alone, but should go up for the examination of the Central Midwives Board. If they do not do this the fees for an eight weeks' course in monthly nursing amount to about twelve guineas, but this is only considered sufficient in the case of nurses with previous hospital training. The details as to fees will be found in the list of institutions (pp. 85–88). Many Poor Law infirmaries train midwives, but it will be found that, both in the case of these institutions, and in the few general hospitals provided with lying-in wards, the first claim to vacancies is reserved for members of their own nursing staff, and the opportunities are not therefore very numerous.

The essential difference between a midwife and a monthly nurse is not always clearly understood, and may be emphasised here. A midwife now has a distinct legal status, and is permitted under Act of Parliament, when duly certified under the Central Midwives Board, to attend cases of normal childbirth *without a doctor*, but being obliged, under a penalty, to call in medical aid under certain defined circumstances, laid down by rules. A monthly nurse works only *under the direction of a medical practitioner*. A good deal of confusion has arisen in the past because some people do not like the word "midwife," and think it more polite, apparently, to say "nurse." This is misleading. The word midwife has no convenient synonym, and it is one indeed, with all it implies of comfort and help to mothers in their time of trouble, that any true woman might be proud to use.

Leagues.—The growth of "Nurses' Leagues" in connection with the Training Schools is quite a modern movement, but it is evidently a vigorous and healthy one, for the example first given in this country by St. Bartholomew's Hospital Nurses' League has since been followed by Guy's Hospital, the Royal South Hants Hospital, Chelsea Infirmary, and other institutions. The Guy's Hospital "Past and Present Nurses' League" may be taken as an example. Its objects are (1) to promote social and professional intercourse amongst past and present nurses; (2) to provide for present nurses increased facilities for mental and physical recreation; (3) to provide a register of those who have received their training as nurses at the hospital. Membership is divided into associates and life members, the former being those who after three months' preliminary training are accepted as probationers, and the latter those who have duly received their certificate on the completion of training. In 1908 a School Nurses' League was founded by the London County Council nurses, Miss H. L. Pearse, their Superintendent, being first President.

The following lists, which are representative, not exhaustive, set out the essential details of Nursing Schools in the United Kingdom, so that an intending applicant may be enabled to choose the one most suitable to her individual self. The institutions have been selected from those in which the minimum number of beds is 100.

TRAINING SCHOOLS

A.—LONDON—GENERAL HOSPITALS

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
CHARING CROSS, W.C.	187	4 yrs.	Age 23–30 Three months' trial.	Daily, 2 or 3 hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3 4	Nil £15 £20 £26 Indoor uniform.	Age 23–33. Premium, 52 guineas. Engagement, 1 year. One month's trial.
GREAT NORTHERN CENTRAL, Holloway Rd., N.	170	3 yrs.	Age 23–35 Two months' trial.	Probationers, 2 hrs. dly., Staff nurses, 3 hrs. every other day. ½ day fortnightly. Monthly, 1 day. Yearly, 2 wks. 1st & 2nd, 3 wks. 3rd.	1 2 3 4	£8 £12 £18 £28 Indoor uniform.	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
GUY'S, S.E.	617	3 years' training. Probationers entering through Guy's Hospital Trained Nurses' Institutn. sign agreement for 4½ yrs. 1½ years on private staff.	Age 23-32 Entrance fee, £6 6s. Six weeks in Preliminary School and 3 months' trial in hospital.	Daily, 1 hr. and 3 hrs. alternately. Monthly, 1 day and 2 half-days. Yearly, 1st, 2 wks. ,, 2nd, 3 ,, ,, 3rd, 4 ,,	1 2 3 4 5 6 Outdoor and indoor uniform.	£8 £12 £18 £25 £28 £30	Age 23-40. Premium, 1 guinea a week and £5 a year for use of uniform.
KING'S COLLEGE, Denmark Hill, Camberwell.	350	3 yrs.	Age 23-30 One month's trial.	Daily, 4 hrs. Annual, 1st and 2nd yr., 3 wks., 3rd and 4th yr., 4 wks.	1 2 3 After 3 yrs. £30, increasing £3 yearly.	Nil £15 £20	Age 23-30. Period of engagement, 3 years. Payment, 1st yr., 10 guineas a qr.; 2nd yr., 5 guineas a qr. Uniform provided by hospital.
LONDON, Whitechapel, E.	929	4 yrs. Certifict. given at end of 2 years.	Age 22-33 One month's trial in hospital after 6 weeks' preliminary training at Tredegar House.	Daily, 3 hrs. Fortnightly, 1 day. Half-yearly, 2 wks. End of 2 yrs., 1 month.	1 2 3 and 4, and thereafter, rising to £55, with full-pay pension for life after 18 years' service.	£12 £20	Age 21-40. Payment, 1 guinea a week. Period of engagement, 3 months.
LONDON HOMŒOPATHIC, Ormond St., Bloomsbury, W.C.	166	4 yrs.	Age 22 Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 wks.	1 2 3 4 Part uniform.	£8 £12 £18 £25	Nil.
LONDON TEMPERANCE, Hampstead Road, N.W.	120	4 yrs.	Age 23-30 Provide own uniform.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 wks. After 3rd yr., 4 wks.	1 2 3 4	Nil. £15 £20 £26	Premium, 30 guineas. Engagement, 3 years. Payment, 1 guinea a week. Engagement, 1 year.
METROPOLITAN, Kingsland Road, N.E.	160	4 yrs.	Age 23-30 Uniform 1st yr. One month's trial.	Daily, 3 hrs. Weekly, half-day. Monthly, 1 day. Annual, 15 days; Nurses, 3-4 wks.	1 2 3 4 Uniform after 1st yr.	£8 £12 £20 £24-28	Premium, £31 10s. Engagement, 3 yrs.
MIDDLESEX, Mortimer St., W.	410	4 yrs.	Age from 22	Daily, 2 hrs. Sundays, 3 hrs. Fortnightly, ½ day. Annual, 3 wks.	1 2 3 4 Max.,	£12 £18 £20 £22 £24	Premium, £31 10s. Engagement, 3 yrs.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES. YR.	AMT.	PAYING PROBATIONERS.
ROYAL FREE, Gray's Inn Road, W.C.	165	4 yrs.	Age 23-35 Three months' trial. Indoor uniform (3 dresses, 12 aprons, 3 caps, all Hospital pattern) during trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 1st yr., 16 days; subsequent years, 3 wks.	1 2 3 4	£8 £12 £16 £24 Uniform (materials for).	Payment, 1 guinea per week.
ST. BARTHOLOMEW'S, E.C.	740	4 yrs. Certifict. given at end of 3 years. 4th year as staff nurse or private nurse.	Age 23-33 Elementary knowledge of anatomy and physiology. Vaccinated within last year. Two months' trial.	Daily, 2 hrs. Fortnightly, 1 day and half-day. Yearly, 4 wks.	1 2 3 4	£8 £12 £20 £30	Age 21-40 Period of engagement 3 months. Payment, 13 guineas.
ST. GEORGE'S, Hyde Park Corner, S.W.	341	4 yrs. 3 years' training. 1 yr. as staff nurse.	Age 23-33 One month's trial.	Daily, 2 and 3 hrs. alternately. Sundays, 4 hrs. Monthly, 1 day; 3rd and 4th yr. nurses, 1½ days. Yearly, after 6 mths., 16 days; in 2nd yr. and subsequently, 3 wks.	1 2 3 4	£10 £14 £22 £26-£30	Nil.
ST. MARY'S, Paddington.	301	4 yrs.	Age 23-35 Three months' trial.	Daily, 2 hrs. Alt. Sundays, half-day. Monthly, 1 day. Yearly, 3 wks.	1 2 3 4	£8 £12 £16 £20 No uniform provided 1st year.	Age 23-40. Premium, £30 for 1 year. Shorter periods, a guinea a week.
ST. THOMAS'S, S.E.	603	4 yrs. or 3 yrs.	Age 24-30 One year probationary.	Daily, 2 hrs. Monthly, 1 day. Annual, 4 wks.	1 2 3 4	£10 £20 (according to appointment after training). £22 £24 Material for uniform.	Age 24-33. Premium, £30. Engagement, 3 years. Salary, 2nd yr., £22; 3rd yr., £24.
UNIVERSITY COLLEGE, Gower Street, W.C.	300	4 yrs.	Age 23-30 1-2 months' trial.	Daily, according to time-table. Annual, 3 wks.	1 2 3 4	£8 £12 £16 £24	Premium, £30. Salary given, 3rd yr., £18.
WEST LONDON, Hammersmith, W.	159	4 yrs.	Age 22-32 One month's trial. Hospital uniform during trial.	Annual, 3 wks.	1 2 3 4	£6 £12 £18 £24 Indoor uniform after 1st year.	Nil.
WESTMINSTER, S.W.	213	4 yrs.	Age 24-30 Three months' trial.	Daily, 2 hrs. Sunday, 4 hrs. Weekly, 1 evening. Monthly, 1 day. Yearly, 3 wks.	1 2 3 4	Nil £20 £22 £24 Indoor uniform.	Nil.

B.—GENERAL HOSPITALS IN THE PROVINCES, SCOTLAND, AND IRELAND.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
Aberdeen Royal Infy.	240	3 yrs.	Age 23–35 Three months' trial.	Daily, 2 hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3 Indoor uniform after probation.	£10 £15 £18	Nil.
Ashton-under-Lyne Dist. Infy.	115	3 yrs.	Age not under 22 Three months' trial.	Daily, 2 hrs. Sundays, morning and ½ day alt. Monthly, 1 day. Annual, 16 days.	1 2 3 Indoor uniform.	£10 £15 £18	Nil.
Bath, Royal United Hosp.	130	4 yrs.	Age 22–32 Three months' trial. Provide own uniform, but this is refunded after 3 mths.' trial. Must not act as nurse, after training, within 6 miles of hospital for further 3 years.	Daily, 2–4 hrs. Fortnightly, ½ day. Monthly, 1 day. Annual, 1st, 15 dys. ,, 2nd, 22 ,, ,, 3rd, 22 ,, ,, 4th and subsequent, calendar month.	1 2 3 4	£6 £8 £10 £20	Premium, £20. Engagement, 3 years.
Bedford County Hosp.	100	3 yrs.	Age not under 21 Two months' trial, longer if necessary.	Daily, 2 hrs. 4 hrs. once a week and Sundays, 3rd year. Monthly, 1 day. Annual, 3 wks.	1 2 3	£5 £10 £15	Nil.
Belfast, Royal Victoria Hosp.	300	3 yrs.	Age 23–30 Two months' trial. Uniform (3 dresses and 9 aprons) during trial.	Annual, 3 wks.	1 2 3 Indoor uniform after trial.	Nil £10 £15	Nil.
Birmingham, General Hosp.	329	4 yrs.	Age 21–35 One month's trial.	Daily, 2–2½ hrs. Monthly, 1½ days. Annual, 3 wks.	1 2 3 4 Indoor uniform.	£6 £12 £16 £20	Premium, £21. If leaving after 1 mth., premium returned, less 5 gns.; after 3 mths., less 10 gns.; after 6 mths., less 15 gns. Engagement, 3 years.
Birmingham, Queen's Hosp.	170 (incrsng. to 200)	4 yrs.	Age 23–33 Three months' trial.	Daily, 2 hrs. Weekly, ½ day. Alternate Sundays, ½ day. Annual, 3 wks.	1 2 3 4 Indoor uniform.	£6 £12 £18 £24	Nil.
Blackburn and East Lancashire Infy.	132	3 yrs.	Age 21–30 Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 wks.	1 2 3 Indoor uniform.	£10 £18 £20	Nil.
Bolton Infy. and Dispensary.	140	3 yrs.	Age not under 21 Two months' trial.	Daily, 2 hrs. Weekly, ½ day. Annual, 3 wks.	1 2 3 Uniform.	£12 £14 £18	Nil.
Bootle, Liverpool Borough Hosp.	103	3 yrs.	Age 22 Provide own uniform. Good education and recommendations.	Monthly, 1 day. Yearly, 2 wks.	1 2 3	Nil £12 £15	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
Bradford Ryl. Infy.	210	3 yrs.	Age 22–30 Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 1st, 2 wks. „ 2nd, 3 „ „ 3rd, 3 „	1 2 3 Indoor uniform.	£8 £12 £16	Nil.
Brighton, The Royal Sussex County Hosp.	195	3 yrs.	Age 22–34	Daily, 2½ hrs. Monthly, 1 day; 3rd yr. nurses, 1½ days. Annual, 3 weeks.	Nil.		Nil.
Bristol General Hosp.	200	3 yrs.	Age 22–32 Two months' trial. Preliminary examination in general knowledge or satisfactory evidence of equivalent examination. Entrance fee, £25.	Daily, 2–3 hrs. Alternate Sundays, 5 hrs. Monthly, whole day. Yearly, 3 wks.	1 2 3	Nil £14 £16	Pupils taken for midwifery and massage training. Term, 4 months. Fee, £15 15s. in advance.
Bristol Royal Infy.	350	4 yrs.	Age 23–30 Six weeks' preliminary training. Entrance fee, £3 3s.	Daily, 2 hrs. Fortnightly, ½ day. Monthly, 1 Sunday. Annual, 4 wks.	1 2 3 4 Uniform.	£6 £12 £16 £28	Entrance fee, £3 3s. Premium, £24 3s. Engagement, 3 years. Limited number received (age 22–35) for 3 months. Premium, 10 guineas.
Cambridge, Addenbrooke's Hosp.	148	3 yrs.	Age 22-30 Two months' trial. Entrance fee, £5, repaid on engagement.	Daily, 2 hrs. Monthly, 1 day. Yearly, 2 wks. 1st year; 4 wks. 2nd year; 3 wks. 3rd year.	1 2 3 Uniform material for 3 dresses a year.	£5 £10 £20	Admitted for 3 months. Payment, 13 guineas.
Canterbury, Kent and Canterbury Hosp.	106	2 or 3 yrs.	Age 22–34 One month's trial.	Daily, 2–3 hrs. Weekly, ½ day. Monthly, 1 day. Annual, 1 month.	1 2 3	Nil Indoor unifrm. £15	Nil.
Cardiff Infy.	190	3 yrs.	Age 22–35 One month's trial.	Daily, 2 hrs. Weekly, long evening. Extra hours on Sunday. Monthly, 1 day. Annual, Nurses, 3 wks., Sisters 4 wks.	1 2 3 Part uniform.	Nil £16 £20	Premium, £30. Engagement, 1 year.
Carlisle, Cumberland Infy.	103	4 yrs. Cert. at end of 3 years. 4th year on private staff or in hospital wards between cases.	Age 23–31 Three months' trial. Indoor uniform (3 dresses, 12 aprons) during trial.	Daily, 2 hrs. Monthly, 2 half-days and 1 Sunday. Annual, 3 wks. 4th year, and Sisters 1 month.	1 2 3 4 Indoor uniform end of 1st yr.	£8 £12 £16 £25	Premium, 13 guineas. Engagement, 3 mnths.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
Chester General Infy.	120	4 yrs.	Age 24–30 Two months' trial. After 4 years not to act as nurse for further 3 years within 6 miles of Chester Cross; penalty £20. In their 4th yr. Nurses are on private staff.	Daily, 2 hrs. Weekly, 7 hrs. Annual, 3 wks.	1 2 3 4	£8 £12 £14 £20 Indoor uniform. Outdoor in 4th year, not allowed before. Instruction given in fever nursing and massage.	Nil.
Cork, North Charitable Infy.	120	3 yrs.	Age 20–30 Two months' trial. Premium, £30.	Alt. days, 4 hrs. Annual, 3–4 wks.	1 2 3	Nil £10 £12	Nil.
Cork, South Charitable Infy. and County Hos.	104	3 yrs.	Age 21–30 Entrance fee, £5. Training fee, £25. (to be paid at end of 2 months).	Daily, 2 hrs. Sundays, ½ day. Monthly, ½ day. Yearly, 2 wks. ,, (nurses), 3 wks. ,, (sisters), 4 wks.	1 2 3	Nil £10 £12	Nil.
Derby, Derbyshire Royal Infy.	237	4 yrs.	Age 21–30 2–4 months' trial. Indoor uniform for 1st year. Outdoor uniform not allowed to be worn until 4th year.	Daily, 2–2½ hrs. Sunday, 4 hrs. Monthly, 1 day. Annual, 1st and 2nd yrs., 2 wks. 3rd and 4th yrs., 3 wks.	1 2 3 4	£8 £12 £16 £28	Nil.
Dublin, Adelaide Hosp., Peter St.	135	4 yrs.	Age 22 Premium, £15. Three months' trial.	Weekly, 3 ½-days, from 3–10 p.m. Monthly, 1 day. Annual, 3 wks.	1 2 3 4	£10 £12 £15 £20 After 4 yrs., £25 and £30	Payment, £13 a qr. for 1st year only. Engagement, 3 years, terminable at week's notice. No salary. Certificate at end of 3rd year.
Dublin, Jervis Street Hosp.	100	4 yrs.	Age 22–35 Three months' trial. Indoor uniform. Premium, £40, returned if unsuitable, less 10s. a week if they *leave*.	Daily, 2 hrs. Weekly, ½ day. Annual, 1 month.	1 2 3 4	Nil Nil £13 £15 Outdoor uniform after 2nd year.	Terms on application to the Superioress.
Dublin, Mater Misericordiæ Hosp.	336	4 yrs.	Age 23–35 Three months' trial. Premium, £50. Indoor uniform.	Daily, 2 hrs. Monthly, 1 day. Yearly, 1 month.	1 2 3 4	Nil £8 £12 £16 Outdoor uniform after 2 yrs.	Payment, £13 13s. a qr. No engagement.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS'.
					YR.	AMT.	
DUBLIN, MEATH HOSP. AND COUNTY DUBLIN INFY., Heytesbury St., Dublin.	148	3 yrs.	Age 20–35 Training fee, 50 gs., in 2 half-yearly instalments. Returned, less 4 gns., if pro. only stops 1 month.	Morning or evening every Sunday. Alternate afternoons from 3 to 9.30 p.m.	No salary.		30 probationers. 3 yrs.' training. Fee, 50 guineas.
DUDLEY, THE GUEST HOSP.	166	3 yrs.	Age 20–35 One month's trial. If leaving at end of trial to pay 2 guineas Indoor and outdoor uniform given after trial month.	Daily, 2 hrs. Sunday, ½ day. Monthly, ½ or whole day. Annual, 2 wks.; 3rd year nurses, 3 wks.	1 2 3	£5 5s. £5 5s. £10 10s.	Premium, 10 gns. Engagement, 3 years.
DUMFRIES AND GALLOWAY ROYAL INFY.	130	3 yrs.	Age 22–30 One month's trial.	Daily, 2 hrs. Weekly, ½ day and 1 day alternately. Annual, 2 wks.	1 2 3	£5 £10 £15 Part uniform.	Nil.
DUNDEE ROYAL INFY.	400	3 yrs.	Age 24–35 Six months' trial. Premium, £15, refunded less £4 if leaving at end of month.	Daily, 2 hrs. Sundays, 5 hrs. Weekly, ½ day. Monthly, 1 day. Quarterly, Saty. to Monday (Sisters only). Annual, 3 wks. Sisters, 1 month.	1 2 3	£1 per mnth. for rem'nder of yr. aftr. being placed on staff. £18 and uniform. £21 do.	Nil.
EDINBURGH ROYAL INFY.	926	4 yrs.	Age 23–30 Candidates are required to pass entrance examination in elementary anatomy and physiology, and to show evidence of knowledge of plain cooking and housework.	Daily, 2 hrs. Fortnightly, alternate ½ and whole day. Yearly, 1st yr., 3 wks.; subsequently, 4 wks.	1 2 3 4	£8 £14 £18 £25 Indoor uniform.	Engagement quarterly. Payment, 1st qr., 12 gs.; 2nd qr., 8 gs.; 3rd qr., 5 gs.; 4th qr., free. Uniform provided. Very few vacancies.
EXETER, ROYAL DEVON AND EXETER HOS.	200	4 yrs.	Age 21–35 Three months' trial. Not to work as nurse within 20 miles of hospital for 10 years after leaving.	Daily, 2½ hrs. Every 3rd Sunday, 2.30 to 9 Monthly, 1 day. Annual, 3 wks.	1 2–3 4	£5 for 2nd six months. £20 £25 Uniform 1st year. Material for uniform after 1st year, dresses and caps only.	Nil.
GLASGOW ROYAL INFY.	588	4 yrs.	Age 20–30 Preliminary course of 3 months, fee £5 5s.; pupil pays own board and lodging.	Daily, 2 hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3 4	£8 £12 £20 £25	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
GLASGOW, VICTORIA INFY.	260	3 yrs. (4 yrs. if required as charge nurses.)	Age 24–30 Three months' trial.	Daily, 2 hrs. Weekly and Sundays, 6 hrs. Annual, 3 wks. „ (nurses), 3 „ „ (sisters), 4 „	1 2 3 Indoor uniform.	£12 £16 £20	Premium, £20. 2nd and 3rd years salary £16–£20.
GLASGOW WESTERN INFY.	600	4 yrs.	Age 22–32 Three months' trial.	Daily, 2½ and 3 hrs. alternately. Monthly, 1 day. Annual: Probationers, 17 days. Nurses, 3 weeks. Sisters, 1 month.	1 2–3 4 Uniform.	£10 £15 £25	Nil.
GLOUCESTER, GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.	140	4 yrs.	Age 22–30 One month's trial.	Daily, 2 hrs. Sundays, 3 hrs. Monthly, 1 day. Annual, 1st and 2nd yr., 2 wks.; 3rd and 4th yr., 3 wks.	1 2 3 4 Uniform.	Nil £8 £10 £20	Nil.
GREENOCK HOSP. AND INFY.	140	3 yrs.	Age 24–30 One month's trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 weeks. Sisters, 4 weeks.	1 2 3	£10 £14 £18	Nil.
ROYAL HALIFAX INFY.	150	3 yrs.	Age 22–30 One month's trial and two further months as probationer. Outdoor uniform.	Daily, 2 hrs. Weekly, 4 hrs. Sundays, 3 and 7 hrs. alternately. Annual, 2 wks.	1 2 3 Indoor uniform.	£6 £10 £16	Nil.
HEREFORD, HEREFORDSHIRE GENERAL HOSP.	100	3 yrs.	Age 21–28	Daily, 2 hrs. Sunday, 4 hrs. Weekly, 1 long evening. Monthly, 1 day	1 2 3 Indoor and outdoor uniform.	£4 £10 £12	Nil.
HUDDERSFIELD ROYAL INFY.	140	3 yrs.	Age 21–30 Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 wks.	1 2 3 Indoor uniform.	Nil £10 £15	Nil.
HULL ROYAL INFY.	244	4 yrs.	Age 22–32 Three months' trial.	Daily, 2–2½ hrs. Alt. Sundays, 2–9 p.m. Monthly, 1 day. Annual, 1st yr., 2 wks.; after 1st yr., 3 wks.	1 2 3 Indoor uniform after 1 mth. 4th yr. £25, with indoor and outdoor uniform.	£8 £10 £17	Premium, 15 guineas. Engagement, 1 year or 3 years.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES. YR. AMT.	PAYING PROBATIONERS.
IPSWICH, EAST SUFFOLK HOSP.	145	3 yrs.	Age 20–30 Four months' trial. Hospital uniform during trial (2 dresses, 12 aprons). Outdoor uniform not to be worn.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 wks.	1 £10 2 £12 3 £16 Uniform after trial (material for).	Nil.
KILMARNOCK INFY., Ayrshire.	100	3 yrs.	Age 22–30 Two months' trial.	Daily, 2 hrs. Annual, 3 wks.	1 £12 2 £16 3 £20 Indoor uniform.	Nil.
LEAMINGTON, WARNEFORD AND SOUTH WARWICKSHIRE GENERAL HOSP.	130	4 yrs.	Age 22–30 Two months' trial. After 3 yrs. not to work for further 3 yrs. within 6 miles of Leamington Parish Church ; penalty £20.	Daily, 2 hrs. Sunday, 3–4 hrs. Monthly, 1 day. Annual, 3 wks.	1 £6 2 £12 3 £18 4 £24 Indoor uniform. Outdoor for 1st yr. only.	Nil.
LEEDS GENERAL INFY.	520	4 yrs.	Age 22–30 One month's trial. Twelve months as probationer.	Daily, 2 hrs. Monthly, 1 day. Yearly, 3 wks.	1 £10 2 £14 3 £18 4 £25 Indoor uniform.	Nil.
LEICESTER INF.	270	4 yrs.	Age 23–33 Two months' trial. Preliminary training course.	Daily, 1½ hrs. and 2½ hrs. alterntly. Monthly, whole or ½ day. Sundays, morning or evening. Annual, 1st and 2nd yr. 2 wks. ; 3rd yr., 3 wks. ; 4th yr., 4 wks.	1 £8 2 £12 3 £14 4 £25 and bonus £5. Uniform after trial.	Premium, £10 10s. a quarter.
LINCOLN, COUNTY HOS.	107	3 yrs.	Age 23–30 Three months' trial.	Daily, 2 hrs. Twice a wk., 4 hrs. Monthly, 1 day. Annual, 1st yr., 2 wks. ; after 1st yr., 3 wks.	1 £6 2 £12 3 £18 4 £20 Uniform.	Payment, 15 guineas. Engagement, 6 mths. Find own uniform. No certificate under 3 years.
LIVERPOOL, DAVID LEWIS NORTHERN HOSP.	200	4 yrs.	Age not under 23 One month's trial. Further 5 months' trial and premium, £5 ; returned at end of 4 yrs.	Daily, 2 hrs. Weekly, 4 hrs. Alt. Sundays, ½ day. Monthly, 1 day. Annual, 4 wks.	1 £12 2 £15 3 £20 4 £25 Indoor uniform. Outdoor uniform in 4th year.	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
LIVERPOOL, ROYAL INFY.	300	4 yrs.	Age 23–30 Two months' trial.	Daily, 2 hrs. Fortnightly, ½ day. Monthly, 1 day. Yearly, 3 wks.	1 2 3 4	£10 £16 £18 £25 Material for indoor uniform after 1st yr.	Premium, £35 for 1st year. Engaged for 3 yrs. after if satisfactory.
LIVERPOOL, RYL. SOUTHERN HOSP., Caryl Street.	207	3 yrs.	Age 23–30 Three months' trial.	Daily, 2–4 hrs. Alt. Sundays, 3–9 p.m. Monthly, 1 day.	1 2 3 4	£6 £15 £20 £25 Indoor uniform.	Nil.
LIVERPOOL, STANLEY HOSP.	112	3 yrs.	Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual: Probationers, 3 weeks. Sisters, 1 month.	1 2 3	Nil £10 £15 (staff nurse, £25). Indoor uniform.	Nil.
MANCHESTER, ANCOATS HOSP.	114	3 yrs.	Age 21–30 Three months' trial.	Daily, 2 hrs. Sundays, 3½ hrs. and 8 hrs. alt. Annual, 2 wks.	1 2 3	Nil £12 £21 Uniform after trial.	Nil.
MANCHESTER ROYAL INFY.	598	3 yrs.	Age 23–30	Daily, 2 hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3	£10 £15 £18 Indoor uniform.	Nil.
NEWCASTLE-ON-TYNE, ROYAL VICTORIA INFY.	430	4 yrs.	Age 22–30 Three months' trial.	Daily, 1st yr., 2 hrs.; 2nd and 3rd yr., 2 or 3 hrs. altrnt. days. Fortnightly, ½ day. Yearly, 3 wks.; staff nurses and sisters, 4 wks.	1 2 3	£10 £14 £20 Indoor uniform.	Nil.
NORFOLK AND NORWICH HOSP.	210	4 yrs.	Age 23–30 Two months' trial.	Daily, 2 hrs. Sunday, 4 hrs. Monthly, 1 day. Annual, 1st yr., 2 wks.; after 1st yr., 3 wks.; 4th yr., 1 month.	1 2 3 4	£8 £12 £16 £24 Uniform.	Nil.
NORTHAMPTON GENERAL HOSP.	166	3 yrs.	Age 21–30 Three months' trial.	Daily, 2 hrs. Annual, 2 wks.	1 2 3	£5 £14 £18 Indoor uniform after trial.	Nil.
NOTTINGHAM GENERAL HOSP.	254	3 yrs.	Age 21 (preferably 23) –35 Premium, £10 10s. Two months' trial, uniform during trial.	Alt. days, 3 hrs. and 1 hr.	1 2 3	£6 £10 £16 Indoor uniform after trial.	Age 22–40. Payment, £13 13s. per quarter. Engagement, 3 mths. Provide own uniform.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
Oxford, Radcliffe Infy. and County Hosp., Oxford.	155	3 yrs.	Age 22–30 Two months' trial.	Daily, 2–2½ hrs. Fortnightly, 1 day. Annual, 3 wks.	1 2 3	£5 £10 £20 Indoor uniform and laundry.	Limited number received for 3 months for 13 guineas.
Paisley, Royal Alexandra Infy.	144	3 yrs., 4th yr. if required.	Age 22–34 Three months' trial.	Daily, 2 hrs. Weekly, ½ day. Sundays, 4 hrs. at least. Annual, 16–23 days.	1 2 3 4	Nil £15 £20 £24 Indoor uniform.	Premium, 20 gns. Six months' course. Pay for uniform and laundry.
Perth, County and City of Perth Royal Infy.	110	3 yrs.	Age 22–30 Two months' trial.	Daily, 2 hrs. Fortnightly, ½ day. Annual, 3 wks.	1 2 3	£12 £15 £20 Indoor uniform.	Nil.
Plymouth, S. Devon and E. Cornwall Hosp.	144	3 yrs.	Age 23–30 Age (children's wards), 20. Three months' trial.	Alt. days, 2–3 hrs. Fortnightly, ½ day. Annual, 4 wks.	1 2 3	Nil £15 and indoor uniform. £18 do.	Premium, 1 guinea a week for 3 months; £4 4s. to be paid in advance.
Portsmouth Royal Hosp.	146	3 yrs.	Age 22–30 One to three months' trial. Premium, £5 after trial. Indoor uniform.	Daily, 2 hrs. Weekly, 5 hrs. Monthly, 1 day. Annual, 3 wks. Sundays, morning or evening.	1 2 3	£8 £10 £16 Private nurses, £35–£40 Indoor uniform.	Premium, £31 10s. Engagement, 1 year.
Preston, Queen Victoria Royal Infy.	140	4 yrs.	Age 21–30 Three months' trial. Outdoor uniform.	Monthly, 1 day. Annual, 1st yr., 2 wks.; subseq. yrs., 3 wks.	1 2 3 4	£12 £14 £16 £20 Material for indoor uniform.	Nil.
Reading, Ryl. Berkshire Hosp.	190	3 yrs.	Age 22–35 (preference given to those under 30). Three months' trial.	Daily, 2 hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3	£8 £15 £20 Indoor uniform.	Nil.
Salford, Royal Hosp.	175	3 yrs.	Age 22–30 One month's trial.	Daily, 2 hrs. Sunday mornings and afternoons alternately. Yearly, nurses 2 wks.; sisters 21 days.	1 2 3	£6 £15 £20 Indoor and outdoor uniform.	Nil.
Salisbury, General Inf.	120	2 yrs., premium £10: £5 on entering, £5 in 6 mths. 3 yrs., no prem.	Age 22–32 One month's trial.	Daily, 2 hrs. Extra off duty on Sundays. Weekly, 1 afternoon (2–6). Monthly, 1 day. Yearly, 3 wks. Sisters, 4 wks.	1 2 3	£8 £12 £14 Probtnrs. engaging for 2 yrs. only, no salary. If staying for 3rd year, salary £14.	"Nursing Students" received for not less than 3 months. Fee, £13 13s. in advance. Find own uniform.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
Sheffield Royal Hosp.	213	3 yrs.	Age 21–35 One month's trial.	Probationers: Daily, 2½ hrs. Sunday, ½ day; whole day mthly., till 10.30 p.m. Yearly, 3 wks. Staff nurses: Sunday, ½ day. Weekly, 2 aftns., and 2 evngs. from 4.30–9.30. Frtnghtly., ½ day Monthly, 1 day. Yearly, 3 wks.	1 2 3 Indoor uniform.	£6 £12 £18	Premium, 25 guineas. Engagement, 1 year can be extended. No certificate given under 3 yrs. Indoor uniform provided. Probationers serving 2 years without salary receive £18 3rd year.
Sheffield, Royal Infy.	320	4 yrs.	Age 23–30 Three months' trial.	Daily, 2 hrs. Alt. Sundays, ½ day. Weekly, ½ day (staff nurses). Monthly, 1 day. Annual, 23 days.	1 2 3 4 Material for uniform.	£5 £10 £15 £25	Nil.
Shrewsbury, Salop Infy.	130	3 yrs.	Age 22–32 Entrance fee, 21s. Three months' trial.	Daily, 2 hrs. Sundays, 4 hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3	£5 £10 £18	Premium, 21s. a wk Engagement, 1 yr.
Southampton, Royal S. Hants and Southampton Hosp.	130	3 yrs.	Age 21–35 Entrance fee, 1 guinea. Three months' trial.	Daily, 2 hrs. Monthly, 1½ days. Yearly, 1st and 2nd yr., 2 wks.; 3rd yr., 3 wks.	1 2 3 Indoor uniform.	£8 £10 £12	Nil.
Stoke-upon-Trent, N. Staffordshire Infy., Hartshill, Stoke-upon-Trent.	240	3 yrs.	Age 21–32 Three months' trial.	Daily, 2 hrs. Monthly, 1 day and ½ day. Annual, 3 wks.	1 2 3 4 (staff nurses) Indoor uniform after trial.	£8 £10 £18 £25	Nil.
Sunderland, Royal Infy.	210	3 yrs.	Age 21–30 Three months' trial. Premium, £5, returned when candidate qualifies (after 3 yrs.), but forfeited should candidate leave on her own account before qualifying.	Daily, 2 hrs. Monthly (after 1st yr.), 1 day. Sundays, morning or evening. Annual, 1st yr, 2 wks.; 2nd yr., 3 wks.	1 2 3 Indoor uniform.	£10 £16 £18	Nil.
Swansea, General and Eye Hosp.	141	3 yrs.	Age 21–35 Three months' trial.	Daily, 3 hrs. Weekly (3rd yr. nurses), ½ day. Monthly, 1 day. Annual, 3 wks.	1 2 3 Indoor uniform after 1st year.	Nil £12 £18	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH. OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
TAUNTON AND SOMERSET HOSP.	106	4 yrs.	Age 22–30 Three months' trial.	Daily, 2 hrs. Sundays, morning or evening. Monthly, 1 day. Annual, 4 wks.	1 2 3 4	Nil £10 £18 £25 Material for uniform.	Premium, £13 13s. Engagement, 3 mths., can be extended at same rate per qr.
WIGAN, ROYAL ALBERT EDWARD INFY. AND DISP.	148	3 yrs.	Age 22–30 Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 2 wks. Nurses, 3 wks.	1 2 3	£12 £14 £16 Indoor uniform.	Nil.
WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSP.	108	4 yrs.	Age 21–33 Three months' trial.	Daily, 2 hrs. Sunday, 3½ hrs. Monthly, ½ day (3rd yr. nurses, 1 day). Annual, 3 wks. (3rd yr. nurses, 4 wks).	1 2 3 4	£8 £12 £14 £25	Premium, £10. Engagement, 3 yrs. Salary, 1st yr., £6; 2nd yr., £10; 3rd yr., £12.
WOLVERHAMPTON AND STAFFS GENERAL HOSP.	200	3 yrs.	Age 21–30 Three months' trial. Indoor uniform (2 dresses, 10 aprons) during trial.	Daily, 2½ hrs. Monthly, 1 day (if possible). Annual, 3 wks.	1 2 3	£8 £12 £16 Indoor uniform material after trial.	Nil.
WORCESTER GENERAL INF.	130	3 yrs.	Age 21 One month's trial.	Monthly, 1 day. Annual, 23 days.	1 2 3	Nil £10 £15 Indoor uniform.	Premium, £10 10s. One month's trial. Engagement, 2 yrs. Indoor uniform provided by Infirmary.
YORK, COUNTY HOSP.	150	3 yrs.	Age 23–30 Three months' trial.	Daily, 1½ hrs. (as far as possible). Weekly, ½ day, from 3–9.30 p.m. Annual, 4 wks.	1 2 3	£3 £8 £12 Indoor and outdoor uniform after trial.	Nil.

C.—SPECIAL HOSPITALS IN LONDON AND THE PROVINCES

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH. OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
HOSPITAL FOR CONSUMPTION, Brompton, S.W.	318	3 yrs., including 1 year at a general hospital.	Age 20–30 One month's trial.	Daily, 2 hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3	£10 £12 £24 Uniform.	Nil.
BRISTOL ROYAL HOSP. FOR SICK CHILDREN AND WOMEN.	108	2 yrs.	Age 22–28 One month's trial. Premium, £10.	Daily, 2 hrs. Monthly, 1 day. Annual, 2–3 wks.		Nil. Laundry and uniform.	Engagement, 3 mths. Premium, £12.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES. YR. AMT.	PAYING PROBATIONERS.
Cancer Hosp., Fulham Rd., London, S.W.	114	3 yrs., according to suitability, at Matron's discretion.	Age 21 Two months' trial.	Daily, 2 hrs. Alt. S'ndays, ½ day. Monthly, 1 day. Annual, 3 wks.	1 £10 2 £15 3 £25 Material for indoor uniform.	Nil.
Hosp. for Sick Children, Gt. Ormond St., W.C.	240	3 yrs.	Age 21–30 Successful vaccination since age of 15. One month's trial.	Daily, 3 hrs. Monthly, 1½ days. Yearly, 3 wks.	1 £8 2 £12 3 £18 Indoor uniform.	Age 21–35. Three months' trial. Premium, 52 guineas, paid quarterly in advance. Engagement, 1 year.
Margate Royal Sea-Bathing Hosp.	168	2 or 4 yrs.	Age 23–30 One or two months' trial.	Daily, 2 hrs.; 3 hrs. once a week. Weekly, 1 evening. Probationers, 1 day and night (24hrs.) altrnt. months. Nurses, 1 day each month. Yearly, 3 wks.	1 £6 2 £12 3 £18 4 £24 Laundry and indoor uniform.	Nil.
Mount Vernon Hosp. for Consumption, Northwood.	210	2 yrs.	Age 21–30 One month's trial; may be passed on to General Hospital if found satisfactory.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 wks.	1 £10 2 £10 Laundry and uniform.	Nil.
National Hos. for Epilepsy and Paralysis, Queen Sq., W.C.	160	3 yrs.	Age 21–30 One month's trial.	Daily, 2 hrs. Fortnightly, ½ day. Every 3rd Sunday.	1 £12 2 £16 3 £18 Uniform after probation.	Nil.
New Hosp. for Women, Euston Rd., N.W.	64	2 yrs.	Age 20–35 Three months' trial.	Annual, 3 wks.	1 £8 2 £10 3 £15	Fee, £30 per annum, and provide own uniform. Trained nurses received for periods of not less than 3 months, fee £1 1s. per wk.
Pendlebury, Manchester, Children's Hosp.	168	3 yrs.	Age 19–28 One to three months' trial.	Daily, 3 hrs. Weekly, ½ day. Monthly, 1 day. Yearly, 3 wks.	1 £5 2 £10 3 £15 Uniform dress material & caps.	Age 21–30 Premium, £50. Engagement, 1 year.
Poplar Hosp. for Accidents, Blackwall, E.	103	3 yrs.	Age 22–30 One month's trial.	Daily, 2 hrs. Monthly, 3 half-days, 1 whole day. Annual, 4 wks.	1 £12 2 £20 3 £22 Laundry and indoor uniform.	Engagement, 3 mnths. Premium, £13 13s.
The Queen's Hospital for Children, Hackney Rd., E.	132	3 yrs.	Age 21–28 Six weeks' trial.	Daily, 2 to 3 hrs. Weekly, ½ day. Annual, 3 wks.	1 £12 2 £14 3 £16 Laundry and indoor uniform.	Fee, £1 1s. per week for 3, 6, or 12 months.
Royal National Orthopædic Hosp., 234, Gr. Portland St., W.	200	2 yrs.	Age 20–30 One month's trial.	Daily, 2 hrs. Fortnightly, 1 day. Annual, 3 wks.	1 £12 2 £16 Laundry each year, and indoor uniform 2nd year.	Nil.

Name and Address.	No. of Beds.	Length of Engagt.	Qualifications.	Holidays and Off Duty.	Salaries. Yr. Amt.	Paying Probationers.
East London Hosp. for Children, Shadwell, E.	124	3 yrs.	Age 20–26 Three months' trial.	Daily, 3 hrs. Monthly, 1 day and night Yearly, 4 wks.	1 £10 2 £12 3 £20 Indoor uniform al'w'd after trial.	Age 20–30 Premium a gn. a week Engagemt. 6 mths. or a year.
Ventnor, Isle of Wight, Royal Natl. Hosp. for Consumption.	163	1 yr. Can stay 2nd year if recommended by Matron.	Age 20–30 Three months' trial. Certificate for one year is given; probationers, if satisfactory, may go on to General Hospital for 3 yrs.	Daily, 2 hrs. Annual, 2 wks.	1 £10 2 £12 Staff Nrses., £20	Nil.

D.—METROPOLITAN POOR LAW INSTITUTIONS

Name and Address.	No. of Beds.	Length of Engagt.	Qualifications.	Holidays and Off Duty.	Salaries. Yr. Amt.	Paying Probationers.
Bermondsey Infy., Rotherhithe, S.E.	640	3 yrs.	Age 21–30 Three months' trial.	Daily, 2¾ hrs. Monthly, 1½ days. Annual, 3 wks.	1 £12 2 £16 3 £20 Laundry and uniform.	Nil.
Bethnal Green Infy., Cambridge Heath, N.E.	669	3 yrs.	Age not under 21. Strong and well educated.	Daily, 2 hrs. Sunday, 3 hrs. Fortnightly, 1 day. Also 7 wks. during the 3 yrs.	1 £10 2 £15 3 £18 Materials for indoor uniform and laundry.	Nil.
Central London Sick Asylum District:— *Asylums:* Cleveland St., W. The Hyde Av., Hendon, N.W.	266 331	3 yrs.	Age 21 (not under). Three months' trial.	Annual, 1st yr., 14 days; 2nd yr., 18 days; 3rd yr., 21 days.	1 £10 2 £14 3 £18 Uniform; £3 10s. in lieu of beer.	Nil.
Chelsea Infy., Cale St., S.W.	423	3 yrs.	Age 21–30 Three months' trial.	Daily, 2–4 hrs. Occasional, ½ day. Yearly, 2 wks.	1 £10 2 £20 3 £22 Uniform.	Engagemt. 6 mths. on payment of small fee.
City of London Union Infy., 42, Clifden Rd., Lower Clapton, N.E.	373	3 yrs.	Age 21–30 Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Every 3rd Sunday. Annual, 2 wks.	1 £10 2 £15 3 £20 Uniform after trial.	Nil.
Fulham Infy., St. Dunstan's Rd., Hammersmith, W.	500	3 yrs. By serving 6 months extra, nurses may prepare for the C.M.B or the I.S.T.M. exams.	Age 21–30 Three months' trial.	Annual, 16 days.	1 £12 2 £18 3 £20 Indoor and outdoor uniform after trial.	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
GREENWICH INFY., Vanbrugh Hill, Greenwich, S.E.	523	3 yrs.	Age 21–30 Three months' trial.	Daily, 2 hrs. Fortnightly, ½ day. Monthly, 1 day. Annual, 1st yr., 2 wks.; 2nd and 3rd yrs., 3 wks.	1 2 3	£12 £15 £20 Indoor uniform.	Nil.
HACKNEY UNION INFY., High St., Homerton, N.E.	606	3 yrs.	Age 21–30 Three months' trial.	Day duty: 7.30 to 9.30 p.m. daily, ½ day weekly and 1 day monthly. Night duty: Fortnightly, 24 hours. Annual: Probationers, 2 wks.; Staff nurses and Sisters, 3 wks.	1 2 3	£10 £15 £20 Indoor and outdoor uniform.	Nil.
HAMMERSMITH INFY., Ducane Road, W.	370	3 yrs.	Age 21–30 Three months' trial.	Daily, 2 hrs. Monthly, 1 day. Weekly, ½ day. Yearly, 3 wks.	1 2 3	£12 £16 £18	Nil.
HOLBORN INFY., Archway Rd., N.	625	3 yrs.	Age 21–35	Daily, 3 hrs. Monthly, ½ day and whole day. Alternate Sundays, 6 to 11. Yearly, 14 days.	1 2	£15 £20, rising £1 annually. Indoor unfm.	Nil.
ISLEWORTH INFY., Isleworth, W.	412	3 yrs.	Age 22–30 Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 wks.	1 2 3	£10 £15 £20 Staff, £26–£30. Eligible for promotion after 3rd year. Indoor uniform.	Nil.
LAMBETH WORKHOUSE INFY.	679	3 yrs. Mdwfry. trnng. for limited numbers in return for 4th yr. of service.	Age 21–30 Two months' trial.	Weekly, 2 afternoons, 1 evening. Sundays, alternate morning, afternoon, evening. Fortnightly, ½ day. Monthly, 1 day. Annual, 3 wks.	1 2 3	£10 £15 £20 Laundry and indoor uniform.	Nil.
LEWISHAM UNION INFY.	402	3 yrs.	Age 23–33 Two months' trial.	Daily, 2 hrs. Fortnightly, ½ day. Sundays, morning, afternoon, or evening. Monthly, 1 day. Annual, 2 wks.	1 2 3	£10 £15 £20 Indoor uniform.	Nil.
MILE END INFY., Bancroft Rd., N.E.	500	3 yrs.	Age 21 Three months' trial.	Daily, 2 hrs. Fortnightly, 1 night (night duty) Monthly, 1 day. Annual, 16 and 19 days (2nd and 3rd yrs.).	1 2 3	£12 £16 £20 Laundry and indoor uniform.	Nil.
PADDINGTON INFY., Harrow Road, W.	292	3 yrs.	Age 21 Good education. Good health.	Alternate days, 3 hrs. and 1 hr. Weekly, ½ day. Monthly, 1 day Yearly, 3 wks.	1 2 3	£10 £16 £20	Nil.
POPLAR AND STEPNEY SICK ASYLUM, Devons Rd., Bromley, E.	787	3 yrs.	Age 21–35 Three months' trial.	Alternate days, 2 hrs. or more. Weekly, ½ day. Every third wk. whole day. Annual, 23 days.	1 2 3	£10 £15 £20 Indoor uniform after trial.	Nil.
ST. GEORGE'S-IN-THE-EAST UNION INFY., E.	394	3 yrs.	Age, 21–30 Two months' trial.	Alternate days, 2½ hrs. Weekly, ½ day. Monthly, 1 day. Annual, 3 wks. Night nurses, 9.30–11.30 a.m., 1 night every 3 wks.	1 2 3	£8 £12 £20 Uniform and £3 18s. in lieu of part rations.	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
St. George's Union Infy., Fulham Rd., S.W.	776	3 yrs.	Age 21–27 Two months' trial.	Weekly, 3 dys., 2 hrs.; 1 day, 2½ hrs.; 1 evening. Monthly, 1 whole day. ½ day, 2 Sundays in 3. Yrly., 2 wks., cert. nurses, 3 wks.	1 2 3	£10 £12 £18	Nil.
St. Giles's Infy., Camberwell, S.E.	830	3 yrs.	Age 21–30 Well educated and strong. Three months' trial.	Daily, 2 hrs. Monthly, 1½ days. Annual, 3 wks.	1 2 3	£14 £16 £18 Indoor uniform materials.	Nil.
St. Mary Abbot's Infy., Marloes Road, Kensington, W.	667	3 yrs. (and 6 mths., if mdwfry. given).	Age 21–30 Two months' trial.	Daily, 2 hrs. Weekly, ½ day. Alternate Sundays, 3 hrs. Yearly, 2 wks.	1 2 3	£12 £15 £18 Uniform.	Midwifery training given to limited number of own trnd. nurses in 4th year.
St. Mary, Islington, Infy., Highgate Hill, N.	800	3 yrs.	Age 21–30 Well educated.	Daily, 2 hrs. Weekly, 6 hrs. Sundays, 4 hrs. Monthly, 1 day. Annual, 2 wks.	1 2 3	£8 £13 £20 Indoor and outdoor uniform.	Nil.
St. Marylebone Infy., Rackham St., Ladbroke Grove, W.	744	3 yrs.	Age 21–28 Two months' trial. Well educated and strong.	Five times a wk., 2 hrs. Weekly, 1 evening, 5 hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3	£10 £18 £20 Indoor uniform provided.	Nil.
St. Pancras Infy., Dartmouth Park Hill, N.	570	3 yrs.	Age 22–35 Two months' trial.	Daily, 2 hrs. Monthly, 1½ days. Sundays, morning or evening. Annual.	1 2 3	£10 £15 £20 Uniform and £4 in lieu of part rations.	Nil.
St. Pancras Infy., South, Pancras Road, N.W.	400	3 yrs.	Age 21–30 Three months' trial.	Daily, 2 hrs. Weekly, 4–10 hrs. Sundays, 10–1, or 2–4.30, or 6–10. Monthly, 1 day. Yearly, 3 wks.	1 2 3	£10 £15 £20 Indoor and outdoor uniform after trial.	Nil.
Shoreditch Infy., Hoxton St., N.	515	3 yrs.	No fixed age limit. One month's trial.	Daily (10 hrs. per week) Monthly, 1 day. Annual, 2 wks.	1 2 3	£10 £15 £18 Laundry and indoor uniform.	Nil.
Southwark Union Infy., East Dulwich Grove, S.E.	786	3 yrs.	Two months' trial.	Weekly, 2 afternoons and ½ day or evening alternately. Monthly, 1 day. Annual, 3 wks.	1 2 3	£10 £14 £18 Indoor uniform.	Nil.
Wandsworth Union Infy., St. John's Hill, Wandsworth, S.W.	652	3 yrs.	Age not under 21 Medical cert. as to present state of health. One to three months' trial.	Daily, 2 hrs. Weekly, ½ day. Monthly, ½ day. Annual, after 6 months, 7 days; after 12 months, 14 days; after 24 months, 21 days.	1 2 3	£10 £18 £18 Indoor uniform.	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES. YR.	AMT.	PAYING PROBATIONERS.
Whitechapel Infy., Vallance Rd., E.	590	3 yrs.	Age 21–30 Three months' trial.	Daily, 2 hrs. or more. Weekly, 8 hrs. Annual, 1st yr., 2 wks.; 2nd yr., 3 wks.	1 2 3	Nil £18 £22 £4 per ann. "beer money." Laundry and uniform.	Nil.
Woolwich Infy., Plumstead, Kent.	327	3 yrs.	Age 21–33 Well educated.	Daily, 2 hrs. Sundays, 4 hrs. Monthly (pros.), 1 day and 1 half day. Yearly, 2 wks.	1 2 3	£12 £15 £18	Nil.

To the list of the Metropolitan Poor Law Hospitals should be added those of the **Metropolitan Asylums Board.** They are as follows :—

FEVER HOSPITALS

Eastern, Homerton Grove, Homerton, N.E.
North-Eastern, St. Ann's Road, Tottenham, N.
North-Western, Lawn Road, Hampstead, N.W.
Western, Seagrave Road, Fulham, S.W.
South-Western, Landor Road, Stockwell, S.W.
Grove, Tooting Grove, Tooting Graveney, S.W.
Fountain, Tooting Grove, Tooting Graveney, S.W.
South-Eastern, Avonley Road, New Cross, S.E.
Brook, Shooter's Hill, Woolwich.
Northern, Winchmore Hill, N. (Convalescent)
Southern, Dartford, Kent (Convalescent).

SMALLPOX HOSPITALS

Joyce Green, Dartford.
Long Reach, Dartford.
Orchard, Dartford.

In all these institutions the minimum age for Sisters is 25, for staff nurses and assistant nurses (Class i.), 23, and for probationers and assistant nurses (Class ii.), 21. Probationers are appointed at the acute-fever hospitals only, and assistant nurses (Class i.) at the convalescent fever hospitals and smallpox hospitals only. The times off are 12 hours weekly for nurses on day duty; and for nurses on night duty, 3 hours daily for exercise, and 2 nights monthly. In addition, all nurses are allowed 1 day's holiday monthly. The annual holiday for Sisters is 4 weeks, and for staff and assistant nurses and probationers, 3 weeks. The commencing annual salary of Sisters is £38, for staff nurses £26, assistant nurses (Class i.) £24, assistant nurses (Class ii.) £20, and probationers £18. All nurses are provided with board, lodging, washing and uniform.

No nurse is allowed to enter upon duty unless sufficiently protected against smallpox by vaccination or otherwise.

E.—PROVINCIAL POOR LAW INSTITUTIONS

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES. YR.	AMT.	PAYING PROBATIONERS.
Birmingham Workhouse Infy.	1450	4 yrs.	Age 21–33	Daily, 2½ hrs. Monthly, 1 day. Yearly, 3 wks.	1 2 3 4	£10 £15 £18 £20 Uniform.	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
Bradford Union Hosp.	570	3 yrs.	Age 21–30 Two months' trial.	Daily, 2 hrs. Monthly, ½ day. Annual, 3 wks.	1 2 3	£10 £15 £18 Indoor uniform.	Nil.
Cardiff Union Hosp., Cowbridge Road.	194	3 yrs. and 6 mths.	Age 22–30 Two months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 2 wks.	1 2 3	£5 £10 £15 Last 6 mths. at £20 per annum. Indoor uniform.	Nil.
Croydon Union Infy., Thornton Heath, S.E.	410	3 yrs.	Age 21–30 Three months' trial.	Daily, 2–3 hrs. Weekly, ½ day. Annual, 2 wks.	1 2 3	£10 £15 £18 Indoor uniform.	Nil.
Halifax, St. Luke's Union Hosp.	400	3 yrs.	Three months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 3 wks.	1 2 3	£10 £14 £20 Indoor uniform.	Nil.
Leeds Union Infy., Beckett St., Leeds.	800	3 yrs.	Age 21–30 Three months' trial.	Daily, 2 hrs. Monthly, 1 day. Annual, 1st yr., 2 wks.; after 1st yr., 3 wks.	1 2 3	£10 £14 £18 Indoor uniform.	Nil.
Liverpool, West Derby Union Infy., Mill Road, Liverpool.	850	3 yrs.	Age 22–35 One month's trial.	Daily, 2 hrs. Sundays, 2½ hrs. Fortnightly, 7 hrs. Annual, 2 wks.	1 2 3	£10 £14 £18 Uniform.	Nil.
Liverpool, Brownlow Hill Workhouse.	1000	3 yrs.	Age 23–30 One or two months' trial.	Daily, 2 hrs. Yearly, 3 wks.	1 2 3	£10 Incr. to £16. Incr. to £20 according to merit. Afterwrds., if kept on as Sisters, £30–£35.	Nil.
Manchester, Crumpsall Infy.	1400	3 yrs.	Age 22–32 Three months' trial. Personal interview.	Daily, 2 hrs. Monthly, 3 half-days. Annual, 3 wks.	1 2 3	£12 £14 £20 Indoor uniform.	Prem., £20 One mth's trial. Age 22–36. Engt., 1 yr.
Prescot Union Infy.	536	3 yrs.	Age 23–35 Two months' trial.	Annual, 2 wks.	1 2 3	£12 £15 £18 Uniform.	Nil.
Salford Union Infy., Hope, Pendleton.	900	3 yrs.	Age not under 21 Height not under 5 ft. 4 in. Two months' trial.	Annual, 14 days. " 21 "	1 2 3	£8 8s. £12 12s. £15 15s. Uniform.	Nil.
Sheffield Union Hosp., Pittsmoor, Sheffield.	700	3 yrs. (4 yrs. if mdwfery. taken).	Age 21–30 Three months' trial.	Daily, 2 hrs. Fortnightly, 1 evening. Monthly, 1 day. Annual, 1st yr., 2 wks.; after 1st yr., 3 wks.	1 2 3	£10 £18 £20 Indoor uniform.	Nil.
Southampton, Union Infy., Shirley Warren.	370	3 yrs.	Age 21–30 Three months' trial.	Daily, 2 hrs. Sundays, morning, afternoon, or evening. Weekly, ½ day. Monthly, whole day. Annual, 2 wks.	1 2 3	£10 £12 £14 Indoor uniform.	Nil.

NAME AND ADDRESS.	NO. OF BEDS.	LENGTH OF ENGAGT.	QUALIFICATIONS.	HOLIDAYS AND OFF DUTY.	SALARIES.		PAYING PROBATIONERS.
					YR.	AMT.	
SOUTH MANCHESTER (Township of) HOSP., West Didsbury, nr. Manchester.	937	3 yrs. Aftrwrds. trnng. in monthly nursing and massage may be taken, also preparation for the C.M.B. exam.	Age 21–33 Three months' trial. Uniform during trial.	Daily, 2 hrs. Weekly, ½ day. Monthly, 1 day. Annual, 3 wks.	1 2 3 Indoor uniform.	£12 £16 £20	Nil.
STEYNING UNION INFY., Shoreham-by-Sea, Sussex.	250	3 yrs.	Age not under 21	Daily, 2 hrs. Alternate Sundays, 2–9.30. Monthly, 1 day.	1 2 3 Indoor and outdoor uniform.	£10 £12 £15	Nil.

F.—TRAINING SCHOOLS FOR MIDWIVES AND MONTHLY NURSES

Queen Charlotte's Lying-in Hospital

Marylebone Road, London, N.W.—The course of training for Pupil Midwives is specially adapted for those Candidates who wish to present themselves for the examinations for the Certificate of the Central Midwives Board and for those who wish to qualify for appointments as Midwives under the Local Government Board, and similar appointments. The fees which are to be paid to the Secretary on entering, and which include board and lodging, but not washing, are, for the five months' course, £35, or, including one month in the Preliminary Training School, £40. Pupil Midwives enter on the first Monday of each month. Nurses who hold a Certificate of three years' training from a recognised Training School (to be approved by the Committee), may enter under the same regulations for a course of four months' training in Midwifery and Monthly Nursing at the reduced fee of £25. Candidates may be single, married, or widows; and must not be under 21, or over 45, years of age.

The General Lying-in Hospital

York Road, Lambeth, S.E.—Four Classes of Pupils are received for training: A.—Hospital-trained Midwives. Three calendar months' course; for those only who have had sufficient training and experience in general or monthly nursing. Fees, £26 5s. B.—District-trained Midwives. Three calendar months' course. Fees, £18 18s. C.—Hospital-trained Monthly Nurses. Twelve weeks' course. Fees, £18 18s. Eight weeks' course; for those only who have had sufficient previous training and experience in general nursing. Fees, £12 12s. D.—District-trained

Monthly Nurses. Eight weeks' course (including four weeks as Probationer Nurse in Hospital). Fees, £12 12s. Eight weeks' course; for those only who have had sufficient previous training and experience in general nursing. Fees, £9 9s. Applicants must not be under 21, nor over 45 years of age.

N.B.—In all cases the period of training may be extended by arrangement.

Clapham School of Midwifery

165, Clapham Road, London, S.W., and St. John's House, Albert Bridge Road, Battersea, S.W.—Fees for Training in Midwifery: For four months, £12 12s.; for three months, £10 10s.; for one month, £5 5s.; entrance fee, £1 1s.

At Clapham the fees for board and residence are 15 guineas for 13 weeks—the inclusive fees therefore are 26 guineas. At Battersea, board and residence are 12 guineas for 13 weeks, or inclusive of the teaching fees, 23 guineas. The entrance guinea and a certificate of health should be sent in with the application form. The remaining fees are payable in advance on entry. The three months' training must be begun *four months* ahead of the C.M.B. examination, as the schedules applying for examination must be sent in one month before the examination, showing that the full number of cases has been already completed by the pupil.

The above are given as typical instances of the terms upon which midwifery training is obtainable in London. Other principal Lying-in hospitals in London are:—

The City of London Lying-in Hospital, City Road, E.C.
The British Lying-in Hospital, Endell Street, W.C.
The East End Mothers' Home, Commercial Road, E.
The Salvation Army Maternity Hospital, Mare Street, Hackney.

Rotunda Lying-in Hospital

Rutland Square, Dublin.—A limited number of women are trained as Midwives at this Hospital. Candidates must produce satisfactory evidence of moral character, and a Medical Certificate of Health, and must not be under 22 years of age. The period of study is six months—one of which will be spent in the gynæcological wards. For nurses who give evidence of three years' satisfactory training in an approved General Hospital the period of study may be four months; at the conclusion of which time, if they have done their nursing work to the satisfaction of the Lady Superintendent, they shall be examined as to competency before the Master and his Assistants, and shall receive a certificate to that effect. Fee—board, lodging, laundry, practice and instruction—25 guineas, payable in two instalments, half on entering and the remainder at the end of the first three months. The Governors do not guarantee to return any portion of this fee in the event of a nurse discontinuing her training. A registration fee of 10s. must be sent with the application, which will be counted towards the fee on entry, or returned if the applicant is refused. Pupils are trained as gynæcological nurses at this Hospital. Fee—board, lodging, laundry, and instruction—10 guineas for six months, payable in two instalments, half on entering, and the remainder at the end of the first three months. Registration fee the same as for Midwives.

G.—OTHER INSTITUTIONS FOR MIDWIVES AND MONTHLY NURSES

Central Midwives Board

(Office, Caxton House, Westminster, S.W.).—Secretary, Mr. G. W. Duncan. The examinations of the Board, which every Midwife is now required by law to pass, are held every two months in London, and at somewhat less frequent intervals at certain provincial centres (Newcastle, Manchester, Birmingham, and Bristol).

Midwives' Institute

12, Buckingham Street, Strand, W.C.—The course of instruction for midwifery pupils organised by this organisation to meet the requirements of the Central Midwives Board has now been abandoned, and the Institute is left free to concentrate its energies upon its more general work, of which a brief description will be found elsewhere (*see* p. 26). There are now upwards of 50 Midwives' Associations in various parts of the country affiliated with the Institute.

The Maternity Charity and District Nurses' Home

Howard's Road, Plaistow, E.—*Objects:* (1) To provide nursing in their own homes for the inhabitants of the district of South West Ham, composed chiefly of artisans and dock labourers. (2) To specially instruct women for District Nursing in the country. (3) To prepare pupils for the Examinations of the Central Midwives Board. Terms: Six months, general nursing or midwifery, £25; nine months, general nursing and midwifery, £30; one year, general nursing and midwifery, £35; three years' maternity work, salary £8 first year, £16 second year, £26 third year. Hospital-trained nurses accepted for two years' maternity work. Salaries according to experience. If there are vacancies not filled by rural candidates, a limited number of pupils may be admitted as special probationers at £1 1s. weekly. Midwifery pupils, £18 for four months.

Association for Promoting the Training and Supply of Midwives

Dacre House, Dean Farrar Street, Westminster, S.W.—Secretary, Miss Emily J. Ford. Length of training, four to six months; board and lodging are provided, but candidates have to find their own uniform. Assistance towards training fees is given in suitable cases. *Engagement:* To serve as district midwives for two years after training. At end of training candidates must enter for Central Midwives Board, paying their own fee (21s.), and, in the event of failing to pass, must enter for the next examination, paying the further fee.

H.—OTHER NURSING INSTITUTIONS

Queen Alexandra's Imperial Military Nursing Service

War Office, Whitehall, S.W.—The qualifications of candidates, terms of appointment and promotion, the salaries, pensions and allowances will be found fully set out at pp. 155–7.

Queen Alexandra's Indian Nursing Service

India Office, St. James's Park, S.W.—A history of this Nursing Service, with details of the salaries and allowances, holidays, etc., is given on page 161.

Queen Alexandra's Imperial Military Nursing Service Reserve

War Office, Whitehall, S.W.—For details of this Service, *see* pp. 163–5.

Territorial Force Nursing Service

The organisation of this Service is described at page 166, where also will be found a statement of the conditions of service, etc.

Queen Alexandra's Royal Naval Nursing Service

Admiralty, S.W.—*Conditions:* Candidates must be of British parentage or naturalised British subjects, and must have had three years' training in a large general hospital. *Age:* 25 to 35. Probation, six months. *Retirement:* Head Sisters and Superintending Sisters at 55; Nursing Sisters at 50. *Pension:* After 10 years' service if rendered unfit for duty through disease or injury; amount of pension to depend on salary. *Salaries:* Head Sisters, £130 to £160; Superintending Sisters, £70 to £100; Nursing Sisters, £40 to £65. Allowance in lieu of board, 15s. a week at home, 21s. abroad. Furnished rooms, fuel, light, and uniform are provided. There are maid-servants to attend on the Nursing Sisters. *Annual leave:* Head Sisters, 6 weeks; Superintending Sisters and Nursing Sisters, 5 weeks. In addition, they may be allowed leave from 1.30 to 5 p.m. daily unless on afternoon duty; one half-day a week, from 1.30 to 10 p.m., except when week-end leave is given; and one week-end every third week.

Queen Victoria's Jubilee Institute for Nurses

58, Victoria Street, S.W.—This institution was founded by her late Majesty Queen Victoria in 1887 for the purpose of providing nurses for the sick poor in their own homes. The Queen's nurses are employed in district nursing under the associations affiliated to the Institute. *Conditions of joining :* Three years' general training, two years of which must have been spent in one institution, and six months' district training. This latter can be obtained from the Institute, from a Home affiliated to the Institute, or at the candidate's own expense. If the first, candidates receive a salary of £12 10s. for the six months, and uniform, and have to agree to serve the Institute as district nurses for a stated time. (*See* Vol. III., page 148.) *Salaries :* After training, from £30 a year, with board, lodging, and uniform. *Certificate* awarded after two years' service. Nurses wishing to work in Scotland should apply to the Superintendent, 26, Castle Terrace, Edinburgh ; and in Ireland, to the Superintendent, 63, Dawson Street, Dublin.

Colonial Nursing Association

Imperial Institute, S.W.—*Conditions of employment under the Association :* Nurses must be fully trained in general nursing ; midwifery is very desirable, and, for many posts, essential ; preference is given to gentlewomen. *Salaries* are usually £60, with board, lodging, laundry and uniform. Second-class passage out and home on termination of agreement, which is in most cases for three years, the agreement being signed with the Association. The Association is also employed by the Colonial Office to recommend nurses for Government service in the Crown Colonies. Salaries vary from £35 to £100, lodging always provided, but board frequently included in salaries of £80 and upwards. Passages out and home are provided. Agreements vary from one year in West Africa to five years in Hong-Kong. Some Colonies have a pensionable staff, for which the nurse is eligible after her first term of agreement is completed. Agreements are signed with the Crown Agents, who make all arrangements for passage, etc.

Royal British Nurses' Association

10, Orchard Street, London, W.—The objects of the Association, of which H.R.H. Princess Christian is President, are (1) to found and maintain schemes for the benefit of nurses in the practice of their profession, and in times of adversity, sickness, and old age ; (2) to maintain an office for supplying information to persons seeking for nurses, and to persons seeking for employment as nurses ; (3) to maintain an authorised list of persons who may have applied to the Corporation to have their names entered therein as nurses, and whom the Corporation may think fit to enter therein ; (4) to promote conferences, public meetings, and lectures in connection with the general work of the Corporation. Membership is open to trained registered nurses of three years' standing. There is a club-room and library attached to the offices, and the *Nurses' Journal*, the official organ of the Association, is published every month.

Royal National Pension Fund for Nurses

A permanent home for the Fund has been built at 15, Buckingham Street, Strand, W.C., and was opened by Queen Alexandra (who was accompanied by King Edward VII.) in 1908. *Objects :—*

1. The Fund is mutual and essentially co-operative.

2. Nurses can pay their premiums monthly, quarterly, or at irregular intervals, as best suits their convenience. If from any circumstances they are unable to meet payments as they become due, every consideration is shown and time allowed.

3. Nurses can assure for pensions of any amount, commencing at any age.

4. Those entering under the Returnable Scale can have their premiums returned to them with compound interest, less a small deduction for working expenses, and after seven years even this deduction is not made. No policyholder receives less than the amount of the premiums she has paid in.

Deposits are received, upon which interest is allowed.

5. Every five years additions are made to the pension entered for, arising from profit on the working of the Fund, and from the " Donation Bonus " Fund ; substantial advantages may be anticipated from these sources. As each increase is in the form of an additional fixed pension, the *guaranteed* amount thereby becomes greater.

6. Sickness and Accident.—Policies are issued in connection with pension policies assuring 5s. to 20s. a week in cases of incapacity from work through sickness or accident.

7. Policy-holders who, through no fault of their own, find themselves in difficulty as to the payment of their premiums, or in pecuniary difficulty or want, have the first claim on the Junius S. Morgan Benevolent Fund.

The Nurses' Insurance Society is the " Separate Section " of the Royal National Pension Fund for Nurses to carry out the requirements of the National Insurance Act. Its management is separate and distinct from that of the parent Society, as, naturally, are its funds.

National Council of Trained Nurses of Great Britain and Ireland

431, Oxford Street, W.—*Objects :* (1) To promote mutual understanding and unity between Associations of trained nurses in the United Kingdom. (2) Through affiliation with the International Council of Nurses to acquire knowledge of nursing conditions in every country, to encourage a spirit of sympathy with the nurses of other nations, and to afford facilities for national hospitality. (3) To promote the educational, economic, and other interests of the Nursing profession. (4) To increase the usefulness of the trained nurse as a social factor.—President, Mrs. Bedford Fenwick. Hon. Sec., Miss B. Cutler, Assistant-Matron of St. Bartholomew's Hospital. Hon. Treasurer, Miss C. Forrest, Lady Superintendent of the Victoria Nurses' Home, Bournemouth. The affiliated membership exceeds

6,000. The *British Journal of Nursing* is the official organ of the Council. The affiliated societies are as follows:—

Matrons' Council of Great Britain and Ireland.
Society for the State Registration of Trained Nurses.
Irish Nurses' Association.
League of St. Bartholomew's Hospital Nurses.
League of Royal Free Hospital Nurses.
Leicester Royal Infirmary Nurses' League.
General Hospital Nurses' League, Birmingham.
Royal South Hants Nurses' League.
Queen's Hospital Nurses' League, Birmingham.
Chelsea Infirmary Nurses' League.
Hendon Central London Sick Asylum Nurses' League.
St. Giles and Bloomsbury Infirmary Nurses' League.
Kingston Infirmary Nurses' League.
Southwark Infirmary Nurses' League.
Registered Nurses' Society.
League of St. John's House Nurses.
Victoria and Bournemouth League of Trained Nurses.
School Nurses' League.
Steevens Hospital Nurses' League (Dublin).

The Matrons' Council of Great Britain and Ireland

The objects of the Society, of which Miss M. Heather-Bigg, Matron of Charing Cross Hospital, is President, and Miss Mollett, 431, Oxford Street, is Hon. Secretary, are—

(1) To enable Members to take counsel together upon matters affecting their profession; (2) to bring about a uniform system of Education, Examination, Certification, and State Registration of Trained Nurses in the United Kingdom; (3) to take such steps as may be deemed advisable to improve the education and usefulness of Nurses; (4) to hold Conferences for the discussion of subjects of professional and general interest; (5) to uphold the honour and further the interests of the Nursing Profession; (6) to consider, and, if necessary, to take action upon, legislative proposals calculated to affect the interests of Trained Nurses; (7) to do anything conducive or incidental to the attainment of the above purposes.

Incorporated Society of Trained Masseuses

99, Mortimer Street, Cavendish Square, W.—*Objects of the Society:* (1) To improve the status and training of masseuses. (2) To provide for the examination of and the granting of certificates of qualification to masseuses. (3) To keep a roll of members. (4) To establish a registry for members and a centre of information for the public on matters connected with massage. (5) To arrange lectures, provide a reference library, and afford opportunities for the discussion of subjects of interest and importance to masseuses. (6) To provide an organisation to which members have a right to apply for advice and help in professional difficulties. Candidates are required to pass: 1, A *Practical Examination.* 2, An *Oral and Written Examination* in Anatomy, Elementary Physiology, and the Theory and Practice of Massage.

The Examination is held in London twice yearly, and a branch Examination is held annually at the Dublin Centre—the offices of the Irish Matrons' Association, 34, St. Stephen's Green. An Examination is also held annually in London by the Society in Swedish Remedial Exercises, the Certificate being granted only to those holding the Society's Certificate in Massage. No candidates under the age of 21 are allowed to enter for any of the Society's Examinations.

Medico-Psychological Association of Great Britain and Ireland

(Registrar, Dr. Miller, Warwick County Asylum, Hatton, near Warwick).—*Examinations*, both preliminary and final, are held twice a year, in May and November. Two registers are kept, one containing the names of those who have passed the preliminary examination, the other containing the names of those who have passed the final examination and received a certificate of proficiency in nursing and attendance on the insane. Candidates for the preliminary examination must have been in attendance on the insane in a recognised institution for the treatment of mental disorders for at least twelve months, and candidates for the final examination for at least three years. But those who hold certificates of having trained for three years in an approved General Hospital are exempt from the preliminary examination, and are eligible for the final examination after a further two years' training in not more than two institutions for the insane. *Fee for Examination:* 5s., and 2s. 6d. for subsequent examination in the event of failure to pass, with 5s. for the issue of the certificate of proficiency.

Workhouse Nursing Association

116, Rusthall Avenue, Bedford Park, W.; President, H.R.H. Princess Christian; Secretary, Miss Gill.—*Objects:* 1, To enlist public interest in nursing in Workhouse Infirmaries. 2, To promote a high standard of nursing in Workhouse Infirmaries and sick wards; and to advocate the appointment of trained nurses therein. 3, To obtain information on all points connected with nursing in Workhouse Infirmaries. 4, To promote and to assist in any alterations of the law applicable to Workhouse nursing that may seem desirable.

Asylum Workers' Association

(Hon. Secretary, Dr. Shuttleworth, 8, Lancaster Place, Hampstead, N.W.).—This Association was founded, mainly owing to the efforts of Miss Honnor Morten, in 1895. Its objects are "to promote the interests and welfare of Asylum Nurses and Attendants, and of others engaged in nursing the insane, and thereby improve their professional status in the nursing world." There are three classes of members, viz.: (1) Life-Members, chiefly Medical Officers, Matrons and others practically interested in Asylum work, who make one payment of one guinea to the funds of the Association ; (2) Associate Members, comprising persons engaged or interested in Asylum work, who contribute 2s. 6d. annually to the funds ; (3) Ordinary Members, consisting of nurses and attendants engaged either in Asylum work or in private mental nursing, who subscribe 1s. 6d. annually.

Nurses' Co-operation

22, Langham Street, London, W.—The Committee fill vacancies caused by the resignation of nurses in the months of May and November, when suitable candidates are selected, to work on probation for six months, before their election as members of the Nursing Staff of the Co-operation. The nurses receive the whole of their earnings, subject only to a deduction of 5 per cent. in the case of those who joined the Co-operation before the end of 1907; for those who joined later than the date mentioned the deduction is 7½ per cent. The funds so received are devoted to the upkeep of the Central Office, payment of permanent staff, and other necessary expenses, and to insuring the nurses under the Workmen's Compensation Act. *Conditions of joining:* Certificate of three years' general training from training school attached to a general hospital of over 100 beds. Recent experience in private nursing also necessary. Those doing mental nursing only must be members of the Medico-Psychological Association.

The Guild of S. Barnabas for Nurses

Church House, Westminster, S.W.—The Guild, founded in 1876, is a spiritual Society for Nurses who are members of the Church of England. Its headquarters are in London, at the Church House, and it has branches in England and Ireland, and branches and districts all over Greater Britain. There are 82 branches, and the membership is over 5,000 ; those who are interested in nurses but not themselves members of the profession may join as honorary members, and there is a roll of medical associates. The professional qualification is fixed at the minimum, six months in a recognised hospital or infirmary, so that probationers may join it, and thus secure its help during the most difficult part of their career. After they have fulfilled the term of associateship, which is six months, they become members, which event may thus coincide with the completion of their first year of hospital life. Mental nurses, midwives, and masseuses are eligible as members. At all its centres the Guild holds monthly meetings, at which the office is said, and an address given by the chaplain of the branch, and this is as a rule followed by a social gathering to promote friendship. There are four meetings in London—one at St. John's Church, Red Lion Square, one at Pimlico, one at Stepney, and one at St. Alban's, Holborn. All information concerning the Guild can be had from Miss C. J. Wood, Secretary-General, Church House, Westminster.

CHAPTER IV

NURSING AS A VOCATION

By Amy Hughes

Pre-requisite Conditions—Training—The Next Step—Nursing in General Hospitals—In Poor Law Institutions—In Special Hospitals—Private Nursing—District Nursing—Massage.

Nursing is one of the principal occupations that present themselves for the consideration of women, whether under the stress of circumstances which render remunerative employment imperative, or from the desire to be of use to others. From the days of primæval man, woman's maternal instinct has led her to minister to the needs of the young and feeble. Doubtless for ages this instinct was much on a level with that of the animal world, but, by degrees, her higher reasoning powers enabled her to accumulate knowledge regarding the healing virtues of herbs and plants, which knowledge was used for the benefit of the sick and wounded. Such measures of relief, together with the after-care of the rude surgery of the chase and battlefield, were the primitive beginnings of nursing.

It has now come to be generally understood that special preparation is required for intelligent and sympathetic care of the sick, and also that a high type of character is needed to fulfil the many requirements satisfactorily. The door which had been allowed to close when this work was taken from the religious orders has been thrown open once more, and educated women eagerly avail themselves of this opportunity of doing good under conditions more suited to modern times. The great development of medical skill, especially in all surgical matters, has rendered trained after-care of patients indispensable. Since the foundation of the Nightingale School for Nurses in connection with St. Thomas's Hospital in 1860, the large majority of hospitals and infirmaries, both general and Poor Law, train nurses, primarily for their own staff, but also qualifying them for future independent work.

Every candidate for the nursing profession ought to realise what is entailed by the life and work of a nurse before presenting herself for training. However marked may be her natural gift for nursing, she must understand that, like every other gift, the talent needs discipline and cultivation to bring it to perfection. This discipline is best obtained in a Training School attached to a hospital or infirmary large enough to permit of a varied experience being obtained in the care of medical, surgical, and special cases. Age is an important factor in the suitability of a candidate. Full development and growth are seldom attained before twenty-one, and the necessary responsibilities of the work make it most desirable that those who undertake it should be sufficiently mature to face the problems of life and death, disease, and sorrow to be found in every ward, even amongst young children. On the other hand, women over thirty-five years of age have usually lost adaptability, and the power of readily receiving new impressions. They find the training a heavy tax on both their mental and physical strength, and after its completion have more difficulty, in consequence of these disadvantages, in obtaining posts which they can fill satisfactorily.

Good health is indispensable for those who desire to nurse other people. No one should present herself for training who is not normal in mind and body. Quite apart from the personal consequences which result from a breakdown, the effect upon the patients must be considered. The woman who, unequal to the strain, whether mental or physical, yet forces herself to carry out the daily routine, is using up her vitality in the effort, and has none left for the cheerful sympathy necessary in dealing with the sick, and without which the most skilful ministrations become mechanical.

Training.—Three years, as is shown by another contributor, is the usual period required to obtain the certificate of a Nursing School, during which time the candidate, consciously or unconsciously, is being moulded for her future position, either as a useful member of the rank and file, or as one who will attain to posts of responsibility.

She is trained to realise the importance of absolute accuracy and thoroughness in the smallest details, together with the need of implicit obedience and scrupulous attention to all directions. Regularity, punctuality, and consideration for fellow-workers are part of the system, and while gentleness and sympathy are appreciated, sentimentality is eliminated.

In these days want of education seldom stands in the way of a nurse. The capability to follow the theoretical instruction which goes hand in hand with practical work is indispensable. Intelligent obedience to medical instructions is essential, and the interest in carrying them out is infinitely greater when the nurse understands the reasons for the orders given.

Moreover, educated intelligence is necessary to obtain certificates of efficiency in special subjects, such as midwifery and massage, as without such proofs of proficiency a nurse cannot undertake those branches of nursing work.

It will be seen, therefore, that the qualifications and preparation for the work of nursing are: Suitable age, normal health and strength of mind and body, regular discipline and special training in a well-established general hospital or infirmary, followed, if possible, by experience in midwifery, massage, and the care of infectious diseases.

But it must never be forgotten that no routine training can supply the instinct of nursing if that be wanting. The natural sympathy, kindliness, and tact which depend upon its possession cannot be acquired. Deftness, skill, and technical knowledge do not atone for its absence, and it is because many choose the nursing life without this gift that so many failures are recorded.

Although three years has come to be generally recognised as a desirable length of time for qualification for a certificate, every Training School has its own system of education, usually drawn up by the Matron with the approval of the medical staff.

The underlying principle is the combination of practical work with theoretical instruction. Each probationer is sent for longer or shorter periods into the various wards and departments of the institution, where she is under the supervision and practical instruction of the "Sisters" (Head Nurses) and Staff Nurses.

She is taught the daily routine ministrations to the patients, and to take her share in maintaining perfect cleanliness and order in the ward and its annexes.

She learns the meaning of surgical cleanliness in connection with the patient, the operator and assistants, and the instruments and appliances. The principles and practice of bandaging, the preparation and application of dressings and appliances, the use of the clinical thermometer, and the meaning of its record in various diseases, the different systems of treatment, and the effects of drugs, are all part of the curriculum. In addition, courses of lectures are given by members of the medical staff (pp. 59-60), together with classes by the Matron and her assistants on both theoretical and practical nursing subjects, including cookery for invalids. As the probationer gains experience, she is given charge of special cases, attends the operation theatre, is placed on night duty, and during the third year becomes a useful worker, able to undertake minor responsibilities and special work.

During the whole time of training the intelligence and capability of the probationers are tested by periodical examinations, and the total results of technical work, theoretical knowledge, and general conduct are embodied in the class of certificate finally awarded. The practical value of this certificate in enabling its holder to obtain future employment depends somewhat on the Training School from which it was issued.

Nursing Schools may be roughly divided into those attached to hospitals or infirmaries (practically synonymous terms), supported by philanthropic and charitable funds, as distinct from institutions under the Poor Law maintained at the public expense out of the rates, and subject to the regulations of the Local Government Board.

Both in Great Britain and Ireland the principal general hospitals are connected with medical schools, and in such places nurses have opportunities of gaining experience in the latest methods of treatment devised by medical skill.

In hospitals where there are no medical students the nurses do more of the actual treatment, and in this way obtain a valuable practical education.

In Poor Law institutions, as a rule, there are fewer operations and acute surgical cases, and a larger proportion of medical and chronic patients, the nursing of the latter being a most important feature, and one not readily obtained in a general hospital. Poor Law infirmaries frequently afford opportunities also for midwifery and maternity nursing.

The size of a Training School has also to be considered, as if the number of beds is small, it is not always possible to provide sufficiently varied experience for the probationers to qualify fully in general nursing.

The next step.—At the end of the training agreement, unless promoted to a position of responsibility in the same institution, a nurse must decide upon the next step in her career.

She can usually claim to possess the necessary nursing knowledge for attendance on all surgical and medical cases, both children and adults, and gynæcological cases, and may or may not be qualified for maternity nursing, for the care of ophthalmic cases and patients with diseases of the throat and ears, for massage and electrical treatment cases.

Many nurses wisely take a post for a time in one of the hospitals for infectious diseases, a useful experience that cannot be gained in a general hospital.

Many qualify for registration under the Midwives Act of 1902 by obtaining the certificate of the Central Midwives Board, a branch of nursing of increasing importance at the present time.

Others obtain a certificate for massage and electrical treatment if they have not been fortunate enough to have had the necessary instruction during their training.

The **openings for a certificated nurse** may be summarised as institution work, private nursing, district nursing, Army and Navy nursing, and Colonial nursing.

Institution work means a post in a large or small general hospital, in a Poor Law infirmary, in a hospital for women, children, special or infectious diseases, or in a sanatorium for tubercular patients.

Private nursing may be undertaken in connection with a nursing institute, a society working on the co-operative principle, or independently for special medical men.

District nursing, or the care of the sick in their own homes, offers employment in town or country, whether under an association employing a number of nurses, who live in a home with a superintendent, or where only two or three nurses are employed, or in a single post.

Army and Navy nursing require certain conditions to be fulfilled by candidates, but offer substantial advantages in return.

The principal association for *Colonial nursing* enables suitable nurses to obtain satisfactory employment in any part of the dominions beyond the seas.

Nursing in general hospitals.—The regularity and routine of institution life and ward work appeal to many characters. Each large hospital is a little world of its own, and every ward has its individuality. The usual steps of promotion on a hospital staff are from probationer to Staff or Charge Nurse, then in succession to Ward Sister, Night Superintendent, Home Sister, and Matron's Assistant.

Each position carries its own well-defined duties and responsibilities.

On the *Staff Nurses* devolves most of the actual nursing, whether of special cases, or in the wards, by day and also at night.

Although as a rule not directly responsible for the training of the junior nurses, their methods of handling and otherwise dealing with the patients make a lasting impression, and the same may be said of the tone they set of loyalty and co-operation with the Sisters of the wards.

The *Ward Sisters* are responsible for the administration of their wards to the medical staff and to the Matron. They must ensure the proper performance of all orders for the treatment of the patients, obtain accurate reports for the various doctors from the Staff Nurses, and secure the efficient training of the probationers who pass through their hands, which means not only supervision but direct personal instruction. No light part of a sister's duty is the maintenance of order and perfect cleanliness in the ward and its annexes, without interference with the interests of the patients.

In a busy hospital, especially one with a medical school attached, there is always the danger that in the haste and pressure to have all in order for the rounds of the medical staff, the minor requests of patients may be postponed to a more convenient season, and then forgotten, which, apart from any other consideration, is bad training for the nurses of the future.

The post of Ward Sister is one of no small responsibility and influence, as many interests and duties must be considered, and an even balance maintained between them all.

The responsibilities of the *Night Superintendent* and her assistants are onerous, and require the possession of tact, powers of observation, and conscientiousness to meet the various difficulties that may arise.

The *Home Sister* has the care of the probationers and nurses, together with the administration of the nursing quarters. Although not in actual contact with the patients, she is well in touch with all that is going on in the wards, and her classes and instructions to the probationers follow up the lectures of the medical staff and elucidate the treatment they have witnessed.

The Home Sister has ample opportunities of observing the personalities of the nurses who are in training, and her judgment is of great assistance to the Matron in arranging for their various positions for work and responsibility.

The *Matron* is the keystone of the whole system. On her administrative ability hangs the success of the nursing routine, and on her judgment depends the selection of suitable women, from the candidates for training to those who ultimately fill the various posts of responsibility throughout the institution.

If a nurse is aiming ultimately at the matronship of some large hospital, she will do well to take a Ward Sister's post at her own training school, should such be offered her. These appointments at all the large hospitals are almost invariably made from amongst the staff. At smaller or special hospitals they are filled from outside. When she comes to apply for outside appointments a nurse will often find that her three years at her first Training School have not supplied her with all the qualifications that may be required. For example, a certificate of massage, perhaps an invalid cookery certificate, very probably the certificate of the Central Midwives Board, may be demanded. A nurse is therefore wise, if she possibly can spare the time and money to do so, to go in for these extra certificates so soon as her engagement is over, and not leave it until she suddenly sees some excellent post advertised, and finds that a midwifery qualification is an essential. At some hospitals facilities are given to nurses on the staff to take this training during their engagement, and at some of those hospitals to which a maternity ward is attached the vacancies for pupils are reserved primarily for the nurses. This is an advantage that should be made the most of, if circumstances permit.

An appointment, if only for a short time, as Sister of a ward is good experience. Then, if a matronship is the desired goal, it is very necessary to gain experience in housekeeping. If not attainable at the training school, it is a good plan to take a post as Home Sister or Matron's Assistant at some smaller hospital, before going in for a Matron's appointment.

The same broad principles guide the administration of all general hospitals and infirmaries, although the absence of a medical school makes a considerable difference in the routine work of the nursing staff, who have also in this case much more personal responsibility for the prescribed treatment of patients.

In many small or cottage hospitals there is no resident doctor, and

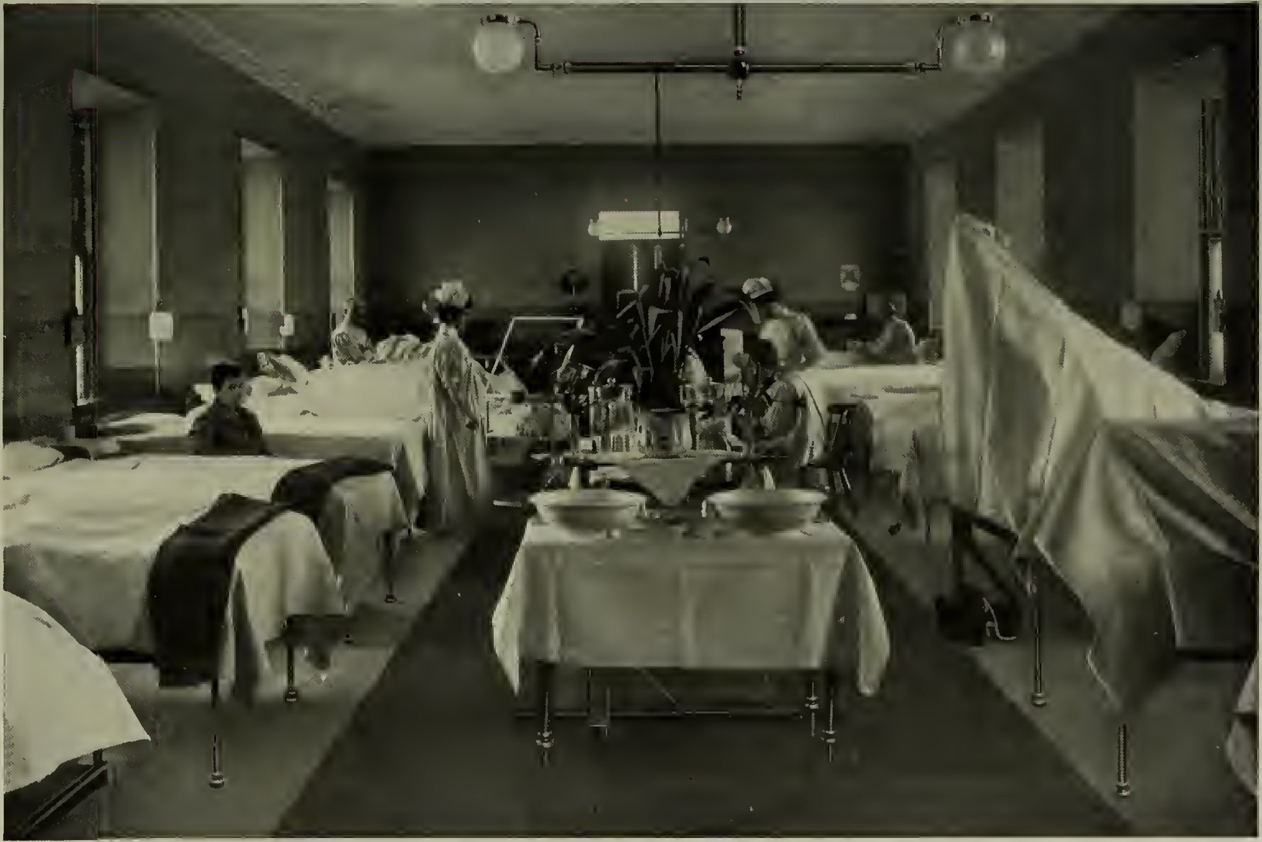

Photo: *Pictorial Agency.*

PLATE V.—A WARD IN THE GLASGOW ROYAL INFIRMARY.

therefore the Matron and nurses have to render first aid, and immediate emergency treatment if need arises.

The work in general hospitals, whether large or small, has its special charm for many women. Apart from the life of the wards, the regularity of the hours, both for duty and for sleep and recreation, the opportunities of friendly intercourse with those keenly interested in every phase of medical work and scientific research, the possibilities of promotion, the openings for powers of organisation and of giving instruction, all appeal strongly to many characters. They also appreciate being able to help in the never-ending work of alleviation and healing, and of educating other women to take their part in the profession.

Nursing in Poor Law institutions.—The conditions of life and work in the larger Poor Law hospitals or infirmaries, which are under separate administration from the workhouse, are on much the same lines as in general hospitals.*

Probationers are accepted for three years' training, and there are staff or assistant nurses, under the Sisters, Head Nurses, or Charge Nurses as they are variously named, all the nursing staff being responsible to the Medical Superintendent and under the control of the Matron or Superintendent Nurse.

In infirmaries directly attached to workhouses the Master and Matron of the workhouse are the official authorities, and legally responsible to the Board of Guardians for the efficient administration of the sick wards.

This dual authority calls for tact, and a due recognition of the mutual legal responsibilities involved, and is a position which is not found in general hospital nursing. Boards of Guardians have almost complete control of the administration in these infirmaries, and the work is subject to periodical inspection from the Local Government Board. Individual guardians, especially the women members of the Boards, usually make the nursing interests their special work, and their influence and help are in some cases of the greatest value. One difference between the nursing in Poor Law institutions and in general hospitals lies in the greater proportion of chronic patients and the smaller proportion of surgical and operation cases. There is not the same pressure of acute surgical and accident cases, but this is balanced by the number of severe medical and heavy chronic cases.

Under the conditions of the Poor Law, all cases must be nursed to the end, unlike those in general hospitals, which can be discharged when approaching convalescence or when found to be incurable. The nurses thus gain special experience in the care of ordinary chronic ailments and in the needs of old and infirm patients, which is invaluable in private and district nursing. The nursing staff have also to carry out all the treatment prescribed, surgical as well as medical.

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* For full details of Poor Law Nursing, *see* Chapter VIII.

In many infirmaries there is a Maternity Ward, and this gives the nurses experience in this important branch of nursing, and in some cases enables them to qualify for the certificate of the Central Midwives Board.

The presence of feeble-minded and mentally afflicted patients affords the nurses some insight into the care of this class of patient, which may be of great value in private nursing.

The variousness of Poor Law cases is interesting, and the work appeals to women who appreciate being able to come into close personal contact with the patients and their friends. Many are inmates of the wards for months and even years, and thus come to be recognised as personalities, not "cases," a grave danger in busy general hospital wards.

Nursing in special hospitals.—These have each their individual interest, and attract nurses who have realised during their general training which branch of nursing appeals to them individually. Many women also wisely avail themselves of the valuable opportunities thus afforded to gain more detailed knowledge than is usually possible in a general institution. Many children's and women's hospitals take probationers for training, usually at a younger age than they are admitted for general work. Excellent as the experience is, it disqualifies candidates for admission to some of the best Training Schools to have been in another institution. Moreover, the work, though different, is often a great tax on young nurses.

The arrangements of the nursing staff are on the same lines as in ordinary hospitals, the Matron, Sisters, Charge Nurses, and probationers being responsible to the medical staff for the welfare of the patients.

Hospitals for infectious diseases are usually under the control of the municipal authorities, but the work is arranged on the same lines as in other hospitals, and probationers are accepted by many of the principal ones for three years' training. This experience, however, can never give a nurse the varied and intimate knowledge of illness required, unless supplemented by work in a good general hospital.

The life in a sanatorium for tubercular patients may be considered by some to be rather more on the lines of a convalescent home than actual nursing work. These posts require special trained observation and skilful obedience to orders, and also an unfailing supply of tact, sympathy, and patience in dealing with the idiosyncrasies of that type of patient.

Private nursing.—A large majority of nurses turn immediately to this branch of nursing on leaving their Training Schools, being sure of employment on remunerative terms.

Comparatively few realise the special difficulties before them, for which their previous training can seldom prepare them.

There are a certain number of the larger hospitals which supply private nurses from their staff, this work being in a few instances included in the agreement under which the nurses are trained. When this is the case, the suitability of each nurse for the work is ascertained, and she has the opportunity of remaining in the service of the hospital after receiving her certificate.

There are many advantages in so doing. The salary is assured, there is no anxiety in times of sickness, and due provision is made for rest between the cases, and a regular holiday.

The work is usually almost entirely for medical men in connection with the hospital, and the nurse has the advantage of knowing their special methods. Opportunity is also given of learning new forms of treatment by returning to the wards from time to time.

One branch of private nursing is carried on in *Nursing Homes*, chiefly for surgical cases. These homes are usually financed and managed by trained nurses, the patients being generally recommended by doctors who are satisfied with the nursing and other arrangements. It unfortunately happens that some of these establishments are maintained by persons without the necessary knowledge to secure competent attention for the patients. To prevent disappointment, and the danger of a false step at the beginning of a nurse's independent career, very careful inquiry should be made before joining any home.

There are very few towns where a nursing institution does not exist from which trained nurses are supplied for every kind of case. The staff may be engaged at stated salaries, with arrangements for covering expenses between the cases, or on the co-operative system, the nurse receiving the fees, and paying a fixed percentage to the institution.

There are other associations worked entirely on the co-operative system, the best-managed having representative committees by whom every care is taken to prevent the admission of unsatisfactory nurses, while rules are laid down for the mutual benefit of the members.

Some nurses undertake private cases for medical men to whom they are personally known, and for a time this plan is often quite successful. But it is unwise to depend entirely upon this as a permanent means of livelihood. The death or removal from the neighbourhood of one doctor may mean the loss of nearly all the nurse's work, from no fault of her own. Moreover, she is apt to get in a groove if only nursing for one or two doctors, and then finds it very difficult to adapt herself to different methods.

A nurse who decides to nurse private patients in their own homes will be well advised either to become a member of one of the large and well-established co-operative societies, or to join the staff of a good private nursing institution. The co-operative associations offer the widest opportunities for special nursing. A member can usually apply to be sent only to certain cases, such as maternity, children's, gynæcological, infectious, medical, or surgical, and thus is able to attend the class of case she feels most competent to nurse. At the same time, she depends entirely upon herself as regards her success in obtaining full and regular employment. She is duly recommended from the office of the society, but must make her own record. The nurse on the staff of an institution has much less latitude as regards the nature of her work, but knows exactly the amount of annual income and holiday upon which she can depend.

The conditions of private work often press heavily upon nurses, as they enter every class of household, and are brought into intimate relations not only with the patient, but with the patient's friends; and it is in connection with them and the life of the family generally that troubles arise. This subject has been entrusted to another contributor, but I may remark, in passing, that some people are really ignorant of the needs of a nurse with regard to times for sleep and exercise, and others are unreasonable and exacting. She is equally liable to be unduly considered, or to be treated with utter indifference and want of consideration. It requires special qualifications to meet these vicissitudes with wisdom and good temper, and to keep the welfare of the patient as her first consideration. Sympathy without sentimentality, tact, and unselfishness are essential for the nurse who has to deal with all sorts and conditions of men, and, moreover, with people established in their own homes, under no obligation to conform to the necessary conditions for the welfare both of patient and nurse beyond the moral influence that the doctor and nurse can bring to bear upon them.

Some nurses fail in these essential qualities, and by being inconsiderate, exacting, and even unscrupulous in their behaviour, bring disrepute upon the whole profession. Unfortunately, there is considerable confusion in the public mind as to the title of nurse, and carefully selected, well-trained, disciplined women are apt to be confounded with the failures, and even impostors, who are to be found undertaking responsibility for which they are totally unfit.

Every nurse who appreciates the fascination and interest of work amongst new surroundings, and undertakes her duties with single-hearted zeal, must be careful to work only in connection with those institutions which require the highest standards of excellence in their staff, both morally and in nursing skill.

District nursing.—The care of the sick poor in their own homes is a special and interesting branch of nursing. Its importance is apt to be misunderstood, many nurses having a vague idea that the duties consist in cleaning dirty rooms as well as dirty patients, and the care of chronic cases. This impression may be traced to the condition of some patients on admission to hospital wards, and the recollection of others that were discharged as incurable, to make way for acute cases. If a nurse decides to enter upon this work, she will find there are difficulties for which no previous experience, either in institution or in private nursing, has prepared her. They are not only in connection with her work amongst the people, but they also concern her relations to the medical men for whom she works and the committee by whom she is employed.

It is most desirable that she should have special preparation so that she may meet these difficulties successfully, and may use to the best advantage the many opportunities afforded for raising both the physical and moral standard amongst her patients.

This training is offered by Queen Victoria's Jubilee Institute to fully trained nurses in Great Britain and Ireland. A certain number of the affiliated associations receive selected nurses for six months, during which time they are shown not only how to adapt their nursing skill in the best possible way to the altered conditions of the patients' surroundings, but are also instructed by means of lectures, and practically under an experienced superintendent, how to enforce simple lessons in sanitation, wholesome family life, and the care of infants and young children amongst the people.

At the end of six months these nurses work wherever they may be needed for an affiliated association for twelve months. By another arrangement nurses are received on the staff of an affiliated district home for twelve months, entering into an agreement with the local committee for that period of service.

Nurses are recommended as suitable for enrolment as Queen's Nurses after an examination in district nursing, reinforced by satisfactory reports from the Superintendent of the Home and the Inspector of the Institute, their names being submitted to H.M. Queen Alexandra for her approval. Queen's nurses obtain appointments with affiliated associations in any part of the United Kingdom, and can apply for the post they prefer, whether in town or country, in a home or alone, after the completion of the twelve months' agreement. The nature of the work varies somewhat with the district. In towns, and especially in colliery and similar industrial centres, surgical cases, many entailing major operations, are frequent, together with every kind of medical case, and a certain proportion of chronic patients. In country districts there is generally less surgical work, but both maternity nursing and midwifery are required. As a result of the Midwives Act, 1902, the request for district nurses who are certified midwives has greatly increased, and the committees of many urban associations have lately added midwives to their staff.

County associations in affiliation with Queen Victoria's Jubilee Institute train and employ district nurses, their object being to supply nurses, and especially midwives, for rural districts.

There are also county and other associations working independently, but with the same aims as Queen Victoria's Institute, as it is universally recognised that district nursing is a national benefit.

School nursing has already become an important feature of district work under the Education (Administrative Provisions) Act, 1907, for the medical inspection of children in public elementary schools. Hitherto, with few exceptions, nurses engaged in this work have visited schools in a given area, and inspected children reported by the teachers as being not well or uncleanly. Each association has made its own arrangements for obtaining medical advice for ailing children, and usually treatment has been carried out by the nurses at school or in the homes of the children. Under the Act, district nurses may be engaged to assist the Medical Officers in the inspections, and even when local conditions will not permit of this arrangement, they can always carry out in the children's homes, in the course of their ordinary work, the orders given. This affords a valuable opportunity not only for instructing the mothers how to attend to their children's health and cleanliness, but also for ascertaining the conditions of the home surroundings.

Openings for district nurses.—For nurses who shrink from entering upon a further agreement with an institution even for a comparatively short time, there are many other openings for district nursing. Some are in connection with a special parish, or settlement, or where a nurse is supported by a benevolent person, or old charity. Others, again, are managed by committees. Without preparatory knowledge of the lines on which to work, it is seldom that a nurse does full justice to her own skill or to the needs of her patients. She also needs some insight into the usual routine of arranging her cases, the hours for duty and for rest, and also the best way of working for the medical men.

To a nurse who is interested in her fellow-creatures and possesses cheerfulness, tact, and sympathy, district nursing has a special charm. She is brought into intimate contact with the inner family life of every class amongst the poor, and has to meet hitherto unsuspected depths of ignorance and prejudice. The daily routine in all weathers, which often includes the covering of long distances, is a physical strain, and the dealing with so many forms of disease aggravated by poverty is apt to depress at times. On the other hand, the district nurse sees the immediate result of her work in the order of the home, and the gratitude of the patient and friends. She can win the esteem and confidence of the people amongst whom she works, and as well as helping those that are sick, can use her influence to bring a higher and more wholesome standard of life and morals into every home she visits.

Massage.—A certificate in massage is held to be an almost essential qualification for a fully certified nurse to possess. The demand for proficiency in the art of massage has raised the standard in this respect very far above that mere knowledge of "how to rub" which contented many nurses not so long ago. The Incorporated Society of

Trained Masseuses has done a public service by instituting an independent examination for masseuses, held twice a year in London, and those who are well advised will take the opportunity to go up for this certificate. The society now arranges for its examination to be held also in Dublin for the benefit of Irish masseuses. Instruction in massage is given by many private teachers; it is also a special feature of the Hospitals for Epilepsy and Paralysis, Queen Square and Maida Vale. The value placed upon the certificate of the Incorporated Society of Trained Masseuses is shown by the fact that the War Office have made special arrangements for their hospital orderlies to be examined by the society.

Other spheres which are open to nurses are asylum nursing, nursing in the Army and Navy, and in the Colonies and India, subjects which are dealt with by other pens. Enough has been said to show that many fields are open to those who desire to enter the nursing profession, and that a thorough general training is the foundation of a successful career. It is true that there are many prosperous and popular nurses whose knowledge has been obtained without this preparation, but if suddenly confronted with unforeseen difficulties their want of general knowledge and professional discipline not only places them at a disadvantage, but may have results untoward for their patients.

A thorough training is the foundation stone, but suitable character and personality are equally necessary. A good nurse must possess the nursing instinct, her heritage from primæval days, and if it be lacking no training can supply the want. To enter upon the nursing life merely as a means of livelihood is to lose the inner secret of success. There is no need of vows, but the spirit of self-devotion that dictated them is essential. Nursing is not only an honourable, it is a most responsible calling. A nurse oftentimes literally holds the issues of life and death in her hands. Implicit obedience, trained observation, unfaltering self-sacrifice, have turned the scales in a patient's favour, while the lack of them, unknown and unsuspected, has led to fatal results. Not only are technical skill, self-devotion, tact, and common-sense required, but also that *esprit de corps* which is jealous for the reputation of the nursing profession, and makes its members realise that however humble their position, each one has her personal responsibility in maintaining its technical proficiency and moral standard above reproach.

CHAPTER V

THE RELATION OF THE NURSE TO DOCTOR AND PATIENT

By Mary F. May

Sympathy and what it Connotes—Limitations of the Nurse's Knowledge—The "Professional" Attitude—The Duty of Holding One's Tongue—The Mean between Hardness and Fussiness—The District Nurse and Her Opportunities.

The subject of the relation of the nurse to the doctor under whom she is working, and to the patient who has engaged her services, is one of very considerable importance to the nurse who has just completed her training. Her technical skill has been won by hard and strenuous work under the guidance of those to whom these relationships have become matters of routine; she herself has perhaps given them no serious thought, but once launched with her certificate upon an independent career the question becomes a vital one, and a few hints which are the fruit of experience may at this stage of her career be offered to her without exposing the writer to the suspicion of wishing to lecture her fellow-workers.

To be bright, intelligent, interested in the work, is an excellent thing, but more than this is required of the trained nurse: she has to remember that it is her duty to give to surgeon or physician her perfect allegiance as long as she is working under him—not to interpret his orders according to her own preconceptions or preferences, but to carry them out implicitly and without qualification. To her patient she is the person who brings help, the smoother of difficulties, the support of faltering limbs or of the mind that is striving for more strength; she is to be the arm to lean on, aye, often the bearer of some of the burden that troubles the wayfarer whose face is set toward the Valley of the Shadow of Death. And all must be done so quietly, so unostentatiously, that it shall be better known that the help is there than from what source it comes.

It is no easy task that lies before the woman who has chosen the great and honourable career of a nurse.

Perhaps the keynote of good nursing may be said to be sympathy, but this term is so widely misunderstood in the relations of nurse and patient—as indeed in many other relations—that it may be well to make its significance quite plain. For, properly interpreted, it embraces practically everything in the professional attitude of a nurse. The sympathetic spirit is the power of looking at things from another person's point of view, of putting oneself in the place of another, and it implies the exercise of imagination. In the wards of a hospital it shows itself in quick observation, ready and anticipatory help, constant alertness towards both doctors and patients, a ready recognition of times when to serve and when to stand and wait. But to be sympathetic in this sense requires a careful education in all the points where the help is likely to be needed, as well as that general education, that interest in everyday and outside affairs, without which it is impossible to understand the lives of those whose daily work and environment differ so greatly from our own.

Nowadays nurses receive a great deal of technical instruction, and there is some danger that they may forget that after all they can only touch the fringes of the great subjects they have to study. It is very essential to the right handling of an injured or sick person that the nurse should have some knowledge of anatomy and physiology. The directions she has to carry out are more readily and intelligently understood than they could otherwise be; the reasons for treatment become clearer, and her work, instead of being mechanical, is that of an intelligent assistant. She cannot ask too many "whys" when she wants to understand, but her "why" should never be that of a critic. We can all of us recall the astonishment with which, as puzzled probationers, we gazed at that heroine of hospital days, one's own "Staff," who appeared incapable of forgetting anything, and always to know when an occurrence meant sending for the doctor at once or using her own common-sense, but insensibly the hopeless feeling of never being able to know the right thing to do disappeared as one gradually learnt the reasons for much that has to be done.

Let us think for a moment of pharmacy, of which no nurse, unless she has gone in for a thorough training in dispensing, can know anything but the beggarly elements, yet if she has been taught the action of the drugs that she has to administer she is far better able than she could otherwise be to note symptoms intelligently, to understand why certain things are happening in a particular case—whether the happenings are abnormal and should be reported at once to the doctor, or whether, as happens in the administration of certain drugs, the moment has arrived to withhold the dose until she has applied for further directions. She will also have learnt how absolutely essential it is that drugs should be prescribed by no one but the doctor himself, who is alone able to judge of their suitability and probable efficacy. If nurses would but bear in mind that they are the handmaidens of the medical man there would be fewer complaints of their taking too much upon themselves. No one appreciates a good and intelligent nurse more than—shall we say ?—a good and intelligent doctor, and to her he will commit much responsibility if he knows that everything will be reported to him, all duties conscientiously performed—that she will take no independent line of action, though her technical knowledge will enable her to know how to deal with an emergency that may arise in his absence. Her attitude must always be what is known as "professional," not only towards him, but also towards her patients ; but this professional attitude does not eliminate the womanliness which is the first necessity in a good nurse ; it merely keeps her constantly reminded of the fact that her presence in ward or sick-room is that of a skilled helper and not of a confidential friend.

This point requires, perhaps, more attention with regard to the nursing of private patients than in connection with nursing institutions. When people are ill their minds do not of course act in quite the way they do in health. Things are out of proportion. The distant barking of a dog may cause a rise of temperature ; on the other hand, ill news that would crush and bow to the earth in times of health is now treated with curious indifference. Or a sick person will pour into the ears of a sympathising nurse many matters which when well he would hesitate to mention even to an intimate friend, or will express himself with a warmth far beyond the needs of the case, whether the sentiment expressed be approbation or censure. Now a judicious nurse will differentiate between what the patient says because he is ill and what he would like her to know were he in his normal state, just as she will judge how far the treatment (good or bad) that she receives is the result of his abnormal condition. She will always be sympathetic, but always incurious ;

ready to listen for the sake of the relief given by the telling, but quick to put aside from her mind all private concerns into which her position in a household gives her an insight. Above all things, she must know how to hold her tongue. Sometimes she may have to tell the doctor, for his professional guidance, what she has learnt in this intimate way, but to no one else at all should she disclose the confidences of which she has become the recipient. To do so would be an unpardonable breach of trust. The scenes, the characters, the episodes, the revelations, with which her presence in the sick-room has familiarised her, should be a closed book when the time comes for her to depart. Thus in a sense, though an entirely honourable one, a private nurse must lead a double life.

We all hear a great deal—more than is necessary, I hold—about the manners of the modern nurse. She is often described as "hard," sometimes as "flighty," usually as "exacting," and occasionally as "lazy." Nor can it be pretended that such reflections are absolutely unwarranted. That there is in some nurses a haste and roughness of manner which gives some colour to the accusation of hardness, may be frankly admitted, but not infrequently the defect exists only in the patient's morbid imagination; he thinks that his condition demands more time and attention and consideration than can be given, and is resentful because his unreasonable demands are not satisfied. That patients should so often have such feelings suggests that, difficult as it may be, the nurse must try while doing anything for a particular patient to feel that just then no other person or thing is really important; this will help her to be gentle and pleasant, while it will help the patient to feel that the service rendered is a willing one, and to accept it with corresponding graciousness. But even if he is ungracious the nurse must not feel hurt. She is there to serve, and having done all, she has done no more than her duty. It is not her business to instil into her patient a proper sense of moral obligation, but to relieve his physical and mental suffering.

If she is not to expect too much, the nurse must also beware of giving too much in the way of effusive attention, which is sometimes the source of an annoyance she little dreams of. The private nurse has indeed no easy course to steer if in avoiding the Scylla of "hardness" she is not to fall into the Charybdis of fussiness. In the wards of a hospital there are too many calls on a nurse's time to allow her in the ordinary way to give a great deal of it to any one patient, and so in hospital nursing the question does not arise. But in private nursing it is otherwise, and while the nurse should set herself to make the patient as happy in mind and as comfortable in body as circumstances permit, she must maintain what I have called the "professional attitude," or the familiar intercourse will end by being wearisome to her or to the patient, or to both. The power of detachment is a precious gift, and it is a great help to a nurse if she can make herself, so to speak, impersonal in relation to her patients. Nor should she forget that it is as much her duty to behave in such a way as to give no needless trouble in the household as it is to make her patient happy; she is there to help, not to add to the burden which sickness always imposes.

A great deal of what has been said above applies with especial force to the district nurse whose work brings her into contact with many classes and not unfrequently with many conflicting interests. In country places even more than in large towns she will find reticence a most desirable quality, and, let me add, a certain inner disbelief of much that is poured into her ears by patients about their friends and neighbours, or about the doctors. Nor is professional secrecy less an obligation of honour in dealing with the poor than in the nurse's relations with people in better circumstances. The district visitor often ignores this, and, treating the nurse as though she were a detective, goes to her for information about the domestic affairs of some of her "people" which she has no right to seek, and the nurse no right to disclose. To the parish doctor, often an overworked man, the district nurse can be most helpful if he sees that she can grasp his line of action, and may be thoroughly trusted to carry it out. She will have abundant opportunities for devising simple appliances, for utilising what lies ready to hand, for making a little go a long way, for teaching ignorant and untrained people to do much of a nurse's work, for making the very best of circumstances for the sake of the patient.

This, indeed, is one of the best of all the branches of nursing, for it offers the widest scope for helpfulness, and especially for that highest form of service which consists in "helping people to help themselves." The greatest tact is needed here. One must never lay down the law to one's patients, but still one must contrive to get them to do exactly what is wanted of them. How much patience, good temper, and ready wit this often demands it is hardly in the power of words to convey. The nurse will, for example, be asked why poor little Johnny has "nothin' to eat when he's that hungry he could eat hisself. He do cry for a piece, he never could abide milk neither" (probably he had never had the chance). And she must make Johnny's mother see that a bit of solid food would perhaps turn the balance against that trembling little life, though it may need a graphic and lurid picture to make that point go home. And the little Johnnies and Betsies whom the district nurse has to do with are generally spoiled children, and tact has to be exercised in winning them as well as their mothers.

In a calling involving such grave responsibility and presenting so many delicate situations, the standard set up cannot be too high. The training through which the nurse has passed, and the discipline which it involves, should strengthen and develop her character, and yet leave her a woman still—one, let us hope, "nobly planned" for the service to which she has devoted herself. It is only by having high ideals that we can hope for even a decent mediocrity. I have spoken of the allegiance she owes to the doctor in the way of intelligent co-operation and loyal service, faithfulness in detail, the obedience of a soldier to a superior officer, the readiness intelligently to anticipate his wishes while avoiding any suggestion of taking an initiative. But she must be loyal to him also in a less obvious sense: she must emphatically discourage the querulousness which suggests that "Dr. So-and-so doesn't understand my case," and must strive to show how unfair it is to expect good results from a doctor's treatment if his orders are not strictly carried out.

I have scarcely touched on the difficulties of a private nurse, for my conviction is that if a woman always maintains strenuously her own self-respect, and never forgets that the relation between herself and her patient is purely professional, she will more readily avoid those pitfalls which undoubtedly lie in wait for many nurses. A chapter might well be written on the relation of the patient to the nurse, though, piquant as it might be, I fear it would never be read by those who most need the admonitions it might contain! But as "two blacks do not make a white" so neither scant courtesy nor too much attention from patient to nurse can justify her in lowering her own standard. Whatever the treatment she receives, she must never be less than polite, nor more than amiable and sympathetic. She must, by neglecting no task, however disagreeable, show that to her all work is honourable, and that the expression "on duty" has for her a very real and serious meaning. And how can she better define duty than in the lines, familiar to so many of us?—

"Never to tire, never to grow cold.
To be patient, sympathetic, tender,
To hope always, like God to love always,
This is Duty."

CHAPTER VI

HOSPITAL MANAGEMENT

By E. C. Vernet

Charge and Control of the Nursing Staff—Choice of Candidates—The New Probationer—Distribution of the Nursing Staff—The Nurses' Home—Supervision of the Domestic Staff—Catering and Stores—The Kitchen—Laundry Work —The Matron's Duties towards the Hospital.

Those who aspire in these days to the higher posts in the Nursing Profession will find that very much more technical knowledge is expected of them in addition to their nursing qualifications than was formerly the case.

For the purpose of this chapter, which deals with the work of a Matron, her duties may conveniently be classed under four heads;

1. The charge and control of the Nursing Staff.
2. The supervision and control of the Domestic Staff.
3. Catering and stores.
4. General responsibilities towards the institution she serves.

I.—THE CHARGE AND CONTROL OF THE NURSING STAFF

A Matron who has obtained one of these coveted posts finds, of course, an organisation and a staff of nurses already in working order. Whether she has previously known the institution or not, she should begin by quietly noting how things go on, making inquiry, maybe, as to points that strike her specially. In this way she will gain more quickly the confidence of those whose acquaintance she is making, and have time herself to decide whether she wishes to propose alterations or improvements in any of the arrangements.

The choice of candidates for training will fall to her lot, and she will find considerable interest in noting the many and varied characters which present themselves for selection.

It is well, for the sake of economy in time, to fix a day and hour, say once weekly, for interviews, otherwise the busy Matron will find herself constantly called away from other duties by an application for a vacancy.

The new probationer, once chosen and duly received on trial for training, should come very specially under the notice of the nursing head, and a report should be asked for from the Ward Sister as to progress and capabilities. It is often difficult to judge accurately; but if a fair all-round estimate of intelligence, willingness, demeanour, punctuality and obedience to rules is made—even early in the novice's career—the Matron will feel able to decide whether she is suitable for further training or not; and if not, her painful duty is to tell the probationer so, adding, if possible, some kindly advice as to another field of work, or the choice of a different institution.

The distribution of the nursing staff must necessarily vary very much, according to the arrangement of wards, number of beds, class of cases, and off-duty time. Generally speaking, a proportion of one nurse to three patients, spread over the total number of beds, is a convenient one. This would work out at one-third of the total nursing staff on night duty, and two-thirds on day duty, exclusive of Sisters.

There are usually three grades of nurses in a Training School, who may be roughly divided for a total of 100 into :—

First year probationers	30
Second year probationers	40
Staff nurses	30
	100

These might be distributed in threes (one of each grade) to wards of 20 beds, with an extra probationer to take "times off," and a staff nurse to each ward on night duty and a probationer to help between every two wards on account of the very necessary regulation that a ward should never be left unattended, which is practically impossible to carry out if there is only one nurse in each ward all night.

The systematic training of the nurses in all branches available should be the Matron's especial care; and if a probationer's first year can be divided between about four departments, including a little night duty as assistant in a large ward, she should prove a useful nurse in her second year. A Matron who has the good of her nurses sincerely at heart will take real trouble over these "moves," and will keep a book recording each one's experience, and the length of time spent in each department or ward.

"Moves" are often far from popular when a nurse has become very much attached to her Ward Sister or her ward, but if they are made in a kindly spirit, the result usually is an expression of gratitude from the nurse for Matron's firmness in giving her work to do which has enabled her to gain some post or feel more confidence in herself later on.

A probationer's second year would be best spent as ward assistant to a senior nurse, which would generally mean that she would have charge under the Sister in the senior nurse's absence, and gain a certain sense of responsibility. There are also special departments which constitute valuable training before taking charge of a ward, such as casualty work, electrical treatment, and the operating theatre. Hospitals vary as to their arrangements for staffing the theatre, but it is customary to have a Theatre Sister or Charge Nurse, and at least one nurse, working under her; the latter receiving instruction in all the important details of sterilising the dressings and towels, preparation of ligatures, names and uses of instruments, etc. In a busy hospital with two theatres, a Sister to each and three nurses as a permanent staff are not too many, and where such is the custom, it is far easier to give a nurse this necessary experience, as the senior can stay for a considerable time while the other nurses can be moved through in turn for about six weeks' work. It is well to look forward, when placing probationers, to their ultimate destination when they become staff nurses, for one who has done theatre work is a far more valuable help to the surgical Ward Sisters than one who has not. Therefore theatre work should come in a probationer's second year whenever practicable.

Another very valuable experience is that of working in the Nurses' Home under the Home Sister, and this proves of great help to a nurse anxious for promotion, and shows very often whether she has administrative ability or not. It also shows her "the other side" of those apparently strict regulations in the Home which, when disregarded, invariably cause discomfort to fellow nurses, and general anxiety to those responsible for the maintenance of order.

A Matron should make a practice of inspecting from time to time the nurses' own rooms, and recreation rooms, and will find that the knowledge of her personal interest in the Home corridors will, if her visits be tactfully conducted, keep the nurses from many careless ways and unruly proceedings, while the word of praise to the tidy nurse, and the hope expressed to her less orderly neighbour that next time things will look better, will go far towards bringing the Matron into friendly touch with those for whom she is, for the time being, responsible.

The care of the health of the nursing staff calls for good judgment.

A Matron can do much towards keeping her staff in sound health by encouraging their going out of doors when off duty. She should ascertain —if not present at their meals—whether any seem not to enjoy their food, or are asking to be excused too frequently. She can note pale faces and tired gait, especially in new probationers, to whom a few words of kindly advice as to their going out, or wearing different shoes, may often mean increased comfort, and prevent ultimate failure in the career they have adopted.

She should let her nurses feel that she is anxious to be their friend as well as their supervisor, and should arrange regular times when they may come and speak to her freely, which is not always possible or convenient in the wards.

II.—THE SUPERVISION AND CONTROL OF THE DOMESTIC STAFF

All female servants are generally under the Matron's charge, and she will have to engage them. The supply of servants for hospital work is fairly good, the regular times off duty being an attraction, although salaries are not usually so high as in private service. It is well so to arrange the domestics' work that each one's duties are clearly defined, and do not unduly overlap those of others.

A Matron should know how much to allot to each maid and see that the work is properly done, which entails a previous acquaintance with the use—and abuse—of all cleaning materials, methods of turning out rooms, and the care of bedding, carpets and blankets. In the kitchen, much supervision is needed as to cleanliness of saucepans and other utensils, and whether the Matron sees to all domestic details herself or entrusts the daily supervision to a deputy, she should be conversant with the best methods of working, especially with those connected with the cleaning of gas and steam ovens, which are now in almost universal use, and require a good deal of looking after.

Bathrooms and lavatories also require to be frequently inspected, and the servants must be instructed as to the care required for keeping them in proper order.

The Matron should ascertain for herself from time to time that the work indicated above is being properly carried out, as the neglect of it means unnecessary deterioration of expensive plant. She must also see that the maids' bedrooms are reasonably comfortable and well kept, that their meals are nicely and punctually served, and that their general health is attended to. There will usually be a Home Sister acting as her deputy, but the Matron should be the final referee in all matters needing discussion, and should personally ascertain that the maids' comfort is seen to thoroughly, expecting in return willing and faithful service, which will usually be accorded.

III.—CATERING AND STORES

In many hospitals the actual catering and the charge of the stores are entrusted to the Matron, who should therefore know something of prices, qualities and necessary quantities of every form of food and domestic goods. She may have to receive daily the meat, milk, provisions, etc., and must therefore be able to judge of their quality and to criticise competently, if need be, these supplies to their respective purveyors.

A knowledge of cookery is also very valuable, and when the Matron can show that she understands making the most of things, any suggestions as to variety, or serving up in an appetising manner any food left over from the day before, will generally be welcomed gladly by the cook, and certainly be appreciated by the nursing staff. It is not sufficient to write out the menu for a week and conclude that the meal will appear satisfactorily. Each meal needs careful inspection, and such a dinner as roast mutton, greens, potatoes, and rice pudding, may be excellent and attractive, or just the reverse, according to the care bestowed on the cooking and serving thereof. Plates must be hot, greens nicely strained and neatly served, and the meat not overdone.

These details, in the rush of providing for a large number, are apt sometimes to be overlooked by a busy cook; but they can, and should, be seen to, and this is where skilled inspection and supervision come in, as indeed they do in almost every detail concerning a large household.

Assuming that the Matron has charge of this department, she must find out its needs, and keep up a supply of suitable groceries a little in excess of the usual weekly consumption ; it is a mistake to have a large stock of perishable goods, and the better way is to arrange for a weekly requisition to the grocer on a certain day. The cook should receive a daily allowance of rice, currants, sugar, etc., according to what she will require, and it is better to do this direct from the storeroom than to give out quantities for two or three days at a time, although the latter plan would seem to be the easier, and perhaps less troublesome.

In a hospital where the Matron has charge of the catering this would probably include the patients' diet, and this is, of course, on a more routine plan than that of the nurses. The orders of the medical men are observed as to the nature of the food, and all that is required is to see that it is of good quality, nicely cooked, and accurately weighed and served.

Waste of food needs guarding against, and a periodical inspection of the refuse tub should be made. It is also well to know that dripping should be carefully saved and can be used almost entirely to the exclusion of lard. Bread is a difficult item to manage, and much supervision is needed to prevent the throwing away of useful pieces.

Contracts for the larger quantities of provisions are usually made ; but the Matron would be expected to know the prices mentioned therein and to be careful that they are strictly adhered to. Delivery notes should be insisted upon with every article of consumption, and these will need to be compared with the tradesmen's books weekly, corrected if need be, and sent on to the secretary or to the committee according to the custom of the institution.

A record should be kept, by the use of a counterfoil order book, of all requisitions made, and a very valuable adjunct to this is a note-book containing the prices of all articles in current use.

If petty cash is allowed, a careful record must be kept of all disbursements, to be sent in for inspection as required.

All the above duties should be thoroughly understood by a Matron, even if she is not expected to discharge them personally.

The linen stock is an important item coming under her control, and the management thereof is a study in itself.

A contract for the larger quantities of materials, such as sheeting, uniforms, calico, towelling, tea-cloths, blankets, flannel, etc., is advantageous ; haberdashery and things of smaller consumption may possibly be similarly arranged for, and can be had for moderate prices if a sufficient quantity be needed.

There is a great gain in having institution linen made on the premises, and the cost of a good seamstress is certainly repaid in the better make and wear of the articles produced. A record should be kept of all new stock received, and of the use to which it has been put.

A knowledge of the methods of laundrywork is very desirable, and as it is now increasingly the custom to include a laundry in the establishment of the larger hospitals, the Matron will feel more competent to inspect and supervise her own if she has previously studied the subject, and will also be better able—if the washing is entrusted to an outside firm—to discuss with them the knotty points of wear and tear, incorrect returns, the use of chemicals, the price per dozen, etc., and what articles should be charged for at special rates.

Surgical stores, including dressings, rubber tubing and various nursing appliances, waterproof jaconet, mackintosh sheeting, etc., may also be in the Matron's charge, and a great deal can be done by careful and expert supervision, to prevent waste and misuse of these expensive but indispensable adjuncts.

Contracts are here again advantageous, and much interesting knowledge of prices and qualities may be gained by comparing the various sets of samples submitted for competition.

Requisition books for the various departments are useful, but the Matron must first have a clear idea as to the needs of the wards or departments before she can put an effective check on what may seem extravagant demands although they may really be necessary requirements,

IV.—THE MATRON'S DUTIES TOWARDS THE INSTITUTION SHE SERVES

To conclude, a Matron should aim at the maintenance of a thoroughly sound and high standard of feeling and conduct among those whom she controls.

It is a very great achievement to be able so to influence the members of a large community that they can feel real pleasure in keeping even apparently vexatious rules and in co-operating freely and frankly with their Matron towards the general good of the hospital.

The Matron herself must be possessed of good health, a cheerful temperament, a resourceful mind, tact, and courtesy.

She must always primarily consider the interests of the institution, and be ready to sacrifice her convenience, and spend her time, for its good.

If proposals for alterations and improvements which concern her department are made, she should meet them with an open mind, and unless she knows them to be impracticable should be willing to try any schemes suggested, for a time at any rate, in order to prove them a success, or the reverse.

A Matron who is ever ready to say "It cannot be done" to suggestions, will very soon find that her opinion and advice will be less sought after, whereas one who has gained general information on hospital and nursing topics, and can apply it intelligently, will find real pleasure in working out new schemes, and be able to take an enthusiastic interest therein. She will also be a far more valuable assistant to her committee, and will gain their confidence and respect, which is indispensable for one who is honestly desirous of succeeding in her arduous and anxious task.

The Matron's own example of devotion to duty and general resourcefulness in difficulties will go far to promote a spirit of loyalty among her staff, and will help those training under her in many unexpected ways when they, in their turn, go forth to rule others, and remember "how Matron managed it."

CHAPTER VII

THE WORK OF A HOSPITAL PROBATIONER

By Mildred Heather-Bigg

How Nurse Hawkins began Her Training at Charing Cross Hospital—The First Year—The Second, Third, and Fourth Years—Holidays.

No better way occurs to me of enabling the would-be probationer to realise the kind of life she will lead during her training than to let Nurse Hawkins relate how she began her four years' course at Charing Cross Hospital, and then for me to indicate very generally and briefly the successive stages of the training. Nurse Hawkins's narrative is as follows :—

I can still recall most vividly the trepidation I felt at the length of the training. But I was full of energy and of great ideas as to what the life was to be—also firmly resolved that nothing should daunt my determination to carry the training through—ready to face all and any of the objections which kind friends raise when they learn your decision to enter hospital life.

I was received by the Assistant-Matron, who, in a most business-like manner, hurried me off to my room, told me to unpack my box, get into my uniform, be ready for supper at 8, come to prayers at 8.30, then go to my room, and be ready for bed by 10.30, when all the lights were to be extinguished.

I found myself in quite a cosy room, furnished with bed, washstand, Duchess chest of drawers, one table, and a chair. On my corridor there were fourteen bedrooms, all the same size with the exception of the Ward Sisters' rooms, which were larger. At the end of the corridor were two bathrooms ; hot and cold water abounded, and to add to what already seemed to me the height of comfort, was a recess with a kettle (which boiled in less than ten minutes by electricity) for making tea whenever one wanted it.

At 6 a.m. I was roused by a bell ringing down my corridor, and there followed a rush to the bathroom. A good deal of jostling went on, and I soon learnt that the "new probationer" had to give way to the older ones. Here was my first glimpse of what could very easily become an ordeal of "ragging" among nurses. Just as the clock pointed to 6.30, a nurse said in a kindly voice : "You'd better hurry, or you will be marked late for breakfast, and that means trouble later on ; it tells against you in the Pass Exam. at the end of the first year."

"Oh, I shall only be a minute or two late," I cried lightly.

"Only a minute or two late!" she exclaimed. "Let me tell you, if there is one thing you *will* learn in hospital, it is punctuality."

Following in the direction of the other nurses, I found myself in a large dining-room in which were four nicely-laid tables. Breakfast consisted of what the probationer next to me told me were the usual things—bacon, eggs, fish, sausages or ham on alternate days.

The next thing I had to do was to make my bed, open the window, and leave the room tidy for the daily inspection of the Assistant-Matron. Woe to that probationer who had the misfortune to leave her room upside down! Dire threats of being sent to the office were hurled at her, and a terrible experience it was indeed to find oneself in the office, being asked by the Matron, "Why have you left your room in such a disgraceful state? Whom do you expect to tidy it?"

My actual work started in a women's ward of twelve beds. While I was wondering what I should be expected to do, a nurse called me to help her make six of the beds. It was a revelation to me to see how a bed could be made up with clean sheets, etc., with the patient in it. Then followed the dusting of half the ward, polishing the bed tables and lockers, washing utensils in the annexe, etc. Many a snub I received at the amateurish way in which I set about the work, and the length of time I took. I soon found out that one was expected to do a great deal of work thoroughly in a short space of time, no margin being left for doing over again badly done work. That meant being behindhand for the rest of the morning. Everything had to be ready by 10 a.m., when the Resident Doctor came round. At 9.15 the Sister told me to go to my room, change my apron, etc., and be back by 9.30 for lunch. The lunch consisted of bread-and-butter and milk, and any delicacies the nurses had provided for themselves.

At 10 a.m. the Resident Doctor and dressers came, and now began for me the ordeal of a first day in the ward. Dressers asked me for things I had never heard of, neither did I know where they were kept. In my anxiety to be useful I flew down the ward to ask a nurse, and for this was sharply reprimanded. "Nurses never hurry; if Matron had seen you, she would have been angry!" By this time the dresser had found what he wanted, and I thought I should now see some surgery. Instead, I was ordered to fetch two screens, then cut the bread for the patients' dinners, and put the knives, forks and spoons round to each bed. I also helped to take the dinners round.

At 12.30 I was told to go down to the first nurses' dinner. Just as I was leaving the ward the staff nurse called me back, exclaiming in a surprised tone, "Don't you know that you never leave the ward without asking Sister if you may, and if Sister is not here, without asking me?"

Arrived at the dining-room, luck made me sit down at the wrong end of the table. Once again I was rebuked for apparent audacity and undue sense of my own importance. "New probationers sit at the bottom," I was curtly informed. Dinner consisted of hot joint and vegetables, with a milk pudding and a more substantial one, and bread and cheese. Ale was provided for those who wanted it, but lemonade and water were the prevailing beverages.

At 1.15 I returned to the ward, where everyone was busy preparing for the Surgeon's visit. The ward had to be dusted, beds tidied, and the patients attended to. Dressings, etc., had to be put in readiness for the honorary's visit.

Sundry mistakes were my fate, and by 2 p.m. I began to wonder whether I was possessed of any brains, or even common-sense, and I hailed with delight the announcement that I was "off duty" till 5 p.m.

At 5 p.m. I went back to my ward firmly resolved to do my best and keep out of the way rather than be thought pushing. And now a kindly probationer took pity on me and said she would show me my work, adding that I might come to her if I got into a "fix" over anything. How grateful I was, and how easy the work of bed-making, washing the patients, getting the suppers in, tidying the ward, became through this display of fellow-feeling which the memory of her own first days in hospital had prompted.

At 8 p.m. all lights in the ward were put out, and the probationers were off duty and went to supper, which consisted of cottager's pie, milk pudding, bread, butter, and cheese, with milk, lemonade and water. After supper, in company with my friendly fellow-probationer, I went to the nurses' sitting-room, where, with music and singing, we all passed a pleasant hour before we retired to our rooms.

Thus ended my first day as a probationer, and I must own it was interminably long. But in a few weeks I was accustomed to the life, and what had seemed insurmountable difficulties soon proved quite plain sailing. The Sister, staff nurse, and senior probationer taught me the rudiments of nursing, such as taking temperatures and pulses, preparing peptonised food, etc., and although some of my fellow-probationers delighted keenly in making me feel I was a "junior probationer" and "very raw," judicious words of encouragement from those over me prevented me from taking this too much to heart.

For the benefit of future probationers I will now detail briefly what is included in the four years' course of training at Charing Cross Hospital, which may be taken as roughly representative of the training at most other general hospitals that have a four years' course, though there are, of course, points of difference.

To begin with, probationers during their first year are given lectures on Elementary Anatomy, Physiology, Bandaging, Splint-making, and General Nursing. In March and October an examination is held in these subjects, either by the Matron or some other matron who has kindly volunteered to examine. If the probationer is successful in passing the examination, and her work and conduct are satisfactory, she is then admitted as a staff probationer, is given hospital uniform, and receives a salary of £15. If she fail, the Matron can, at her discretion, allow her to come up again in six months' time for examination. Otherwise she leaves the hospital.

When she is a staff probationer, she takes her turn with the others on night duty for three months at a time, and is then given more responsible work in the ward.

In the second year the lectures are held from October to March,

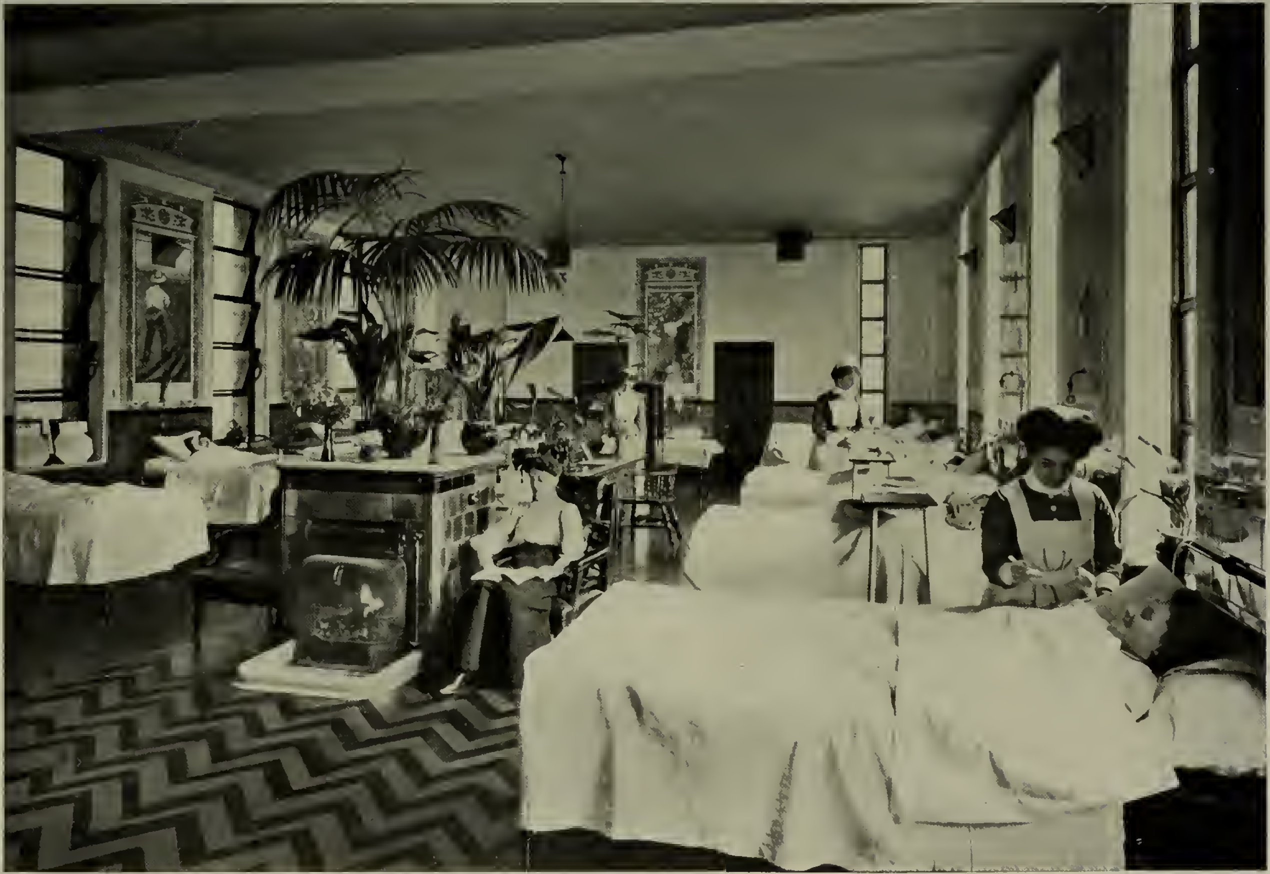

Photo: Pictorial Agency.

PLATE VI.—A WARD AT THE CHARING CROSS HOSPITAL.

being taken by the Honorary Medical Staff. There are ten lectures on Anatomy and ten on Physiology, each course being followed by a class examination. During this year the probationer attends a course of sickroom cookery given by a lecturer from the "Universal Food and Cookery Association." At the completion of the course an examination is held by two examiners from the Association, the successful candidates receiving a certificate.

In her third year a probationer receives a salary of £20, with uniform. Lectures on Medical and Surgical Nursing are given by the Honorary Staff, and in March an examination is held, covering the whole three years' curriculum. On the result of this examination depends the certificate of training, and the bronze medal, which denotes her completed course. If a nurse should fail, she can, if the Matron allow her, take the examination again.

In the fourth year the probationer ranks as a probationary staff nurse, and receives a salary of £26 and uniform. She now takes the staff nurse's holiday duty, and is eligible for a staff nurse's appointment whenever a vacancy occurs. At the completion of the fourth year the staff nurses are eligible for Ward Sisters' appointments at a salary of £30, increasing £5 annually to £45.

During a nurse's time in the hospital she works in the various departments, such as the Operating Theatre, the Out-patients' department, and the Electrical and Light departments, also spending three months in the Housekeeping section, where she learns to receive, give out, and check the stores, draw up the diet sheets, and supervise the servants' and scrubbers' work. She works a certain proportion of her time in all the wards, so that when she is appointed Ward Sister she knows medical, surgical, and gynæcological work equally well.

A probationer has two hours off duty on three mornings in the week, and three hours off duty on three afternoons. She has, further, an extra pass on Sunday (if the work permits) from 10 to 3, or 5 to 9.45, and a whole day off every month. At the end of six months she is entitled to a fortnight's holiday, and at the end of a year, to a week. After this she gets an annual holiday of three weeks.

Staff nurses' hours off duty are two and a half twice a week in the morning, four hours on two afternoons in the week, four hours on two evenings in the week; Sunday, 10 to 1.30, and 1.30 to 10 p.m. alternately, one day a month, and an annual holiday of a month.

CHAPTER VIII

NURSING IN POOR LAW INSTITUTIONS IN ENGLAND AND WALES

By Helen Todd

Difference in Training and Work between Poor Law Institutions and General Hospitals — Metropolitan Common Poor Fund — Overcrowding — Internal Management of Infirmaries — Medical Superintendent — Matron, Assistant Matron, and other Officers—Distribution of Work and Responsibility—Probationers and Training—Poor Law Officers' Superannuation Act—Uniform and Washing — Scheme of Training — Theoretical Teaching — Scrubbers — Training Institutions—Workhouse Nursing.

I.—POOR LAW INSTITUTIONS AND GENERAL HOSPITALS COMPARED

In order to appreciate the difference between the training and work of nurses in a Poor Law Infirmary financed by the rates and that in a General Hospital supported by voluntary contributions, it is necessary to realise the difference in the management and internal economy of the two types of institutions.

A general hospital is under the management of a Board or Committee of Governors elected from amongst the subscribers, the honorary medical officers being almost invariably ex-officio members, and taking a prominent part in the deliberations of the various committees and sub-committees. As vacancies occur the Governors themselves generally nominate fresh members of Committee from amongst the most important or most liberal subscribers to the charity. These are usually known to them personally, and there is rarely any opposition in the election of a new member to the Board.

This method ensures a certain continuity of work, policy, and method on the part of the management, whose decisions are seldom called in question by the main body of the hospital's supporters. As a rule the deliberations are carried on privately, reporters being only admitted to the annual meeting or when circumstances of exceptional interest arise.

All officials are elected and dismissed by the Board, and from their decision there is no appeal, but as the efficiency of the hospital must, to a very large extent, depend upon the financial support which it receives, subscribers always have it in their power to show disapproval of a certain line of policy by refusing to supply the necessary funds.

It is evident that the conditions under which nurses are trained in any hospital depend very largely upon its financial state. Thus their hours of duty and their leave of absence are regulated by the size of the staff. The ideal proportion of nurses to patients in a general hospital is, in my opinion, 1 to 3½ (allowing for an out-patient department, night duty, and holidays), and the size of the staff is entirely dependent on the decision of the Board of Management.

Under the Poor Law the case is widely different. Poor Law infirmaries are managed by Boards of Guardians elected by the ratepayers, and responsible to the Local Government Board for the economy and efficiency of the various institutions, which are inspected at intervals by Local Government Board officials. A Board of Guardians may be, and frequently is, entirely composed of lay members, and the Medical Superintendent of the infirmary can only be present through their courtesy at their meetings, having no voting power at all, and only being able to express an opinion by permission.

Each infirmary is certified to accommodate a certain number of beds by the Local Government Board, and that body also indicates what it considers as an adequate staff. The average proportion of nurses to patients in a "well-staffed" infirmary is as 1 to 7½ or 8.*

Metropolitan Common Poor Fund.—In the metropolis, in order to equalise to some extent the burden of the Poor Law expenditure, each of the 32 Unions is required to pay into what is known as the Metropolitan Common Poor Fund a contribution generally at the rate of 4d. and a fraction of a penny in the pound on the annual ratable value of the Union. This fund, which in 1906 amounted to £829,196, is under the control of the Local Government Board. It provides for the salaries and rations of the officers sanctioned by the Local Government Board in the various institutions, and for medical and surgical appliances; it also contributes certain fees as, for instance, vaccination and school fees, fees for the maintenance of lunatics, and a specified sum (5d. per day at the present time) towards the maintenance of each patient and indoor pauper. Various other items of expenditure can also be recovered by local Guardians from this fund.

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* There is no out-patient department requiring nurses in attendance, as in a general hospital.

The Local Government Board therefore has the power of refusing to pay salaries out of the Common Poor Fund if it disapproves of the action of Guardians in increasing say the nursing staff of an infirmary.

Overcrowding.—When the beds of a general hospital are full the authorities can and do refuse to admit more patients, but the Medical Superintendent of a Poor Law infirmary is under statutory obligations to admit every genuine case of sickness which comes to him through the proper channels. The number of "extra beds" is therefore unlimited, but the Local Government Board takes no cognisance of this when sanctioning a nursing staff for an infirmary, and the guardians in poor localities, and where the burden of the rates is extremely heavy, hesitate to add to the load by employing nurses whose salaries would not be allowed out of the Common Poor Fund but would have to be provided out of the local rates.

In London and other large cities, such as Manchester, Leeds, and Liverpool, the Union infirmaries are entirely separate from the workhouses so far as their internal management and the staff are concerned. In some cases the Medical Superintendent of the infirmary is also medical officer of the workhouse, but this arrangement is by no means common.

The Board of Guardians (often a somewhat unwieldy body) usually select an **infirmary committee** from amongst the members, and it is their duty to consider all questions arising out of the management of the infirmary and then to report upon them to the Board. The powers of such a committee are very limited, and their decisions are always liable to be reversed by the Board. The knowledge that this may be brought about by successful wirepulling and agitating is not conducive either to discipline or to good management in those Unions where the Guardians encourage frivolous complaints from patients and subordinate officers.

II.—INTERNAL MANAGEMENT OF INFIRMARIES

Medical Superintendent.—This official is legally responsible to the Local Government Board for the internal administration of the infirmary *in all its details*. In a large institution containing perhaps 500 to 800 beds, a large part of his time is of necessity occupied in administrative matters, and he therefore requires several Assistant Medical Officers to help in the professional work.

As there are neither visiting physicians nor surgeons, and no students, the medical and surgical work is extremely heavy, and not only does the Medical Superintendent organise the daily routine for his staff of assistants, but as he is held personally responsible for their work he must keep in as close touch with their professional treatment of the patients as with every other detail of infirmary management. In some infirmaries the recognition of this responsibility is carried to such an extent that he alone reports to the Board delinquencies on the part of *any* official, even those in the Steward's and Matron's departments, whilst in other institutions these officers, when necessary, report their own subordinates.

Legally, a Medical Superintendent cannot on his own responsibility suspend a nurse (or other official) for bad conduct, but he can "relieve her of duty" until the Committee meet. That body has the power to suspend an officer "with a recommendation of dismissal" to the Board at the next meeting, but the Committee itself cannot summarily dismiss an officer. Certain principal officers, however, such as the Medical Superintendent, Matron, and Steward, cannot be removed from their posts by the Board of Guardians under which they serve. Their appointment in the first place *must* be sanctioned by the Local Government Board, which alone has the power to dismiss them, they being entitled in such a case to three months' notice.

The Matron.—In the older infirmaries the Matron's position and responsibilities are somewhat vague, but the regulations issued by the Local Government Board to the more modern institutions define the duties of her office with some exactness.

Qualifications.—To be qualified for the post of Matron of a Poor Law infirmary, an applicant must "produce evidence of having passed through a course of training during not less than three years in a public general hospital or infirmary, or in a Poor Law infirmary, being a Training School for nurses and having a resident Medical Superintendent or other resident Medical Officer." In addition to the above qualification a candidate would be expected nowadays to show that she had served as Assistant-Matron in a similar institution, or as Matron in a smaller hospital or infirmary; that she is accustomed to teach probationers in class and competent to manage the domestic staff, supervising the workrooms and laundry.

Duties.—One of the Matron's most important duties in the majority of infirmaries lies in the selection of probationers, and the organisation of the nursing staff, their distribution in the wards, rotation of day and night duty, etc. It is usual for the Matron to keep an official book showing each day where each individual nurse is located, who is away on "leave of absence," and who is sick. Besides this, she should have a register showing in what wards, and for what periods of time in each, the nurse has been working, in order that she may be sure that each probationer's training embraces every possible description of work. It is usual to change probationers from one ward to another every three oi six months, care being taken to ring the changes between the chronic and the acute wards.

The Matron should also keep a daily journal showing changes in the staff, late attendances of outside officers, etc. In this she should also note any occurrence of interest. In some infirmaries it is the practice to submit this book to the Medical Superintendent each morning, in order that he may show, by initialling the entries, that he has a full knowledge of all nursing and domestic occurrences. This book is distinct from the "monthly report" which the Matron writes for the Committee.

The Matron is responsible also for the female staff of servants, scrubbers, washers, etc., and the manner in which they perform their duties. The house-porters, engineers, and other male subordinate officers, are under the jurisdiction of the Steward.

Dieting.—The Medical Superintendent is responsible for the dieting of the patients. The Board of Guardians draws up a scale for the officers' rations, and the Steward usually does the whole of the catering both for officers and patients. In many institutions he even draws up the menus for the meals of the whole staff; in others this duty belongs to the Matron's department. The foodstuffs are invariably bought by contract, and the Steward is vested with the power of rejecting provisions which he does not consider equal to sample, reporting his action to the Committee at their next meeting.

The Matron is responsible for the cooking, and the cleanliness of the kitchens and offices, and for the prevention of waste both in the kitchen and in the wards.

As the patients are all prescribed a certain weight of food it is the duty of the Matron to see that the proper quantity is sent to each ward. She is expected to see it served as far as possible by the Sisters, who have instructions to send any surplus back to the kitchen. In many infirmaries a kitchen register is kept of the amount returned as well as of that sent out.

The supervision of workrooms and laundry is also part of the Matron's duty. Every single garment worn by the patients, the nurses' and servants' uniforms, and all the bedding, etc., are made on the premises—when necessary by paid hands. The Steward has the custody of all raw materials, and also of the made-up stock until it is required for issue.

Ward stock.—Each Ward Sister is provided with a stock book, having columns showing the linen, etc., she is credited with, condemned articles, and those given to replace them. The Matron examines periodically, either monthly or fortnightly, articles considered by the Sisters worn out, and then requisitions from the steward new garments or linen to replace them. It is her duty to see that the ward stock is kept at its full strength. She should therefore check it half-yearly. It is very necessary to insist upon the marking of all articles issued, and the Sisters should be instructed to have clothes re-marked if the ink becomes faint.

Laundry.—The laundry plays a very important part in the organisation of a large infirmary.* The Local Government Board regulations stipulate that each child must have a clean towel every time that he or she is washed. All convalescents, too, must be provided with clothing, and the women's dresses constitute a heavy item in the laundry list. An infirmary of 750 beds will require a steam laundry fitted with appliances capable of washing from 20,000 to 22,000 articles per week, and a staff of about 20 hands, two of whom, at least, should be men accustomed to manage washing and other laundry machines.

To avoid having a too enormous stock in the wards the children's linen and towels and those from certain wards are collected three times a day, and two deliveries made of clean linen, etc. In the majority of the wards, however, a daily collection and a weekly return will suffice. An average stock per ward bed for an infirmary would be 6 linen sheets, 6 draw sheets, 6 pillow cases, 6 towels, 4 blankets, 2 quilts, 6 nightgowns, 2 flannel bed-jackets. A ward containing 20 beds would, in addition, be stocked with clothing for 10 convalescents, allowing three changes to each person, 6 dressing-gowns, 24 doctor's towels, 12 tea-cloths, 24 lavatory cloths, 24 dusters, 40 comb-bags, etc. The mattresses, pillows, water-beds, air-cushions, and mackintoshes, when once issued by the Steward, are also regarded as in the Matron's custody, and are accordingly entered in that part of the ward stock books which she must check personally every six months.

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* The question whether infirmary laundries come under the revised Factory Acts, and are or will be subject to visits from Factory Inspectors, is at present undecided.

As the Matron is responsible for the nursing of the patients, the cleanliness of their persons, of the wards, linen, and indeed of all the interior of the building, it is necessary that she or her assistant make frequent visits to the wards and daily inspect all lavatories, bathrooms, etc. When there is not a Home Sister specially appointed for the purpose this daily supervision must include the nurses' quarters, and those for the domestic staff. In any case these must be occasionally inspected. Sick nurses, too, should have a daily visit from the Matron.

Assistant-Matron.—The duties of the Assistant-Matron are as multifarious as those of the Matron. These two officers arrange to divide the daily inspection between them, the two never being absent from the building together. The Assistant-Matron must hold the same minimum qualifications as the Matron, and some special experience (Home Sister or Night Superintendent) to qualify her for the post.

The **Home Sister** is, as her title denotes, responsible to the Matron for the cleanliness and good order of the Nurses' Home, for the servants' work in that department, and for the serving and carving at the nurses' (and in many cases the servants') meals. She also looks after the sick nurses, and reports to the Matron any whom she considers not well. Her post is an important one, ranking next to that of the Assistant-Matron. She is practically responsible for the nurses when they are off duty, and if a woman of tact she can often wield an immense amount of influence amongst them.

Matron's office.—In a general hospital containing 500 to 800 beds, additional assistance would be provided in "the Matron's office," there being always one or two nurses at work there who are chosen from those who have finished their training, and who are desirous of learning the details of hospital management with a view to obtaining a higher appointment. In an infirmary of similar size this is not the case; the Matron, Assistant-Matron, and Home Sister form the official staff. In consequence, this very valuable experience cannot be gained by a nurse in a Poor Law infirmary, and the pressure of work on these three officers is enormous.

Distribution of work and responsibility.—The organisation of the nurses' work and training is on very much the same lines as that in a hospital, but, owing to the meagreness of the staff, the work is harder in that the hours are somewhat longer.

A Ward Sister or Charge Nurse (as she is officially called) is responsible for her ward in precisely the same manner as her sister in hospital, but she is expected to take a much more active part in the manual work in the ward. The Local Government Board require "evidence," which means a certificate of three years' training from a "recognised Training School," as a qualification for the office of Charge Nurse, and there is keen competition for these posts, constituting as they do the first step in the usual chain of promotion, after completion of training, the sequence being generally Charge Nurse, Night Superintendent, Home Sister, Assistant Matron, and Matron.

III.—PROBATIONERS AND TRAINING

The regulations concerning the management of each infirmary differ in detail, the Local Government Board issuing special "Regulations" in each individual case. These do not go into such matters as the training of probationers, but leave the Guardians to formulate their own scheme.

The "General Order" however, issued by the Board in 1897 expressly states that any person appointed to the office of Matron in an infirmary, a Superintendent Nurse, Night Superintendent or Charge Nurse in an infirmary or workhouse must be "a person qualified for the appointment by having undergone for three years at least a course of instruction in the Medical and Surgical wards of any Hospital or Infirmary being a Training School for Nurses and maintaining a Resident Physician or House Surgeon." This is the basis upon which the present superstructure of "infirmary training" has been built, and infirmaries which provide such facilities are termed "Major Training Schools," "Minor Training Schools" being those in which on account of their smaller number of beds the medical officer is non-resident, and which do not therefore qualify a nurse for the higher grades in the service. Thirty infirmaries in London, seventeen in the provinces, and thirty-one provincial workhouses are recognised by the Local Government Board as Major Training Schools, and it is a matter of great importance in the after career of a probationer that her training be in a school so recognised. A full list of them will be found at p. 144.

Probationers are admitted to these schools for a course of not less than three years' training, the limit of age being not less than 21 years, and as a rule up to 30 years.*

A certificate of health is always required before a candidate is appointed probationer. The certificate of training is granted at the end of the three years, but is contingent on the character earned, the efficiency shown in the wards, and the knowledge acquired, as tested by examination.

In some few infirmaries the Guardians engage probationers themselves, without consulting the Medical Superintendent or the Matron, but this plan does not meet with favour from those best qualified to judge.

In the great majority, however, the would-be probationer is first interviewed by the Matron, who supplies her with a form of application, and if her references prove satisfactory, recommends her to the Medical Superintendent as suitable for a month's trial. During this period she is classed as a "temporary officer," being paid on an average at the rate of 7s. weekly, and providing her own uniform. If she shows herself likely to make a good nurse, and passes the medical examination, she is, when a vacancy occurs, presented to the Committee, which body, if it approves of the candidate, recommends her to the Board of Guardians for appointment as a probationer. This appointment, however, is subject to the sanction of the Local Government Board.

In a case where the applicant has held a former "Poor Law" appointment, the Board under which she has worked is asked a number of questions as to her conduct and capabilities, and the reason for her resignation, and if any of the answers seem unsatisfactory, the Local Government Board may definitely refuse to sanction the appointment altogether, or it may simply withhold its approval, requiring a further report in three or six months' time as to work and capability.

The "sanction" must be obtained anew when the nurse is recommended for promotion, or obtains another appointment.

In some few infirmaries, principally in the provinces, the clerk does not report the appointment of the individual probationers in this manner, the Local Government Board sanctioning the subordinate staff *en bloc.* A case of misdemeanour involving suspension or dismissal is, however, always reported to the authorities at Whitehall, and would prevent the employment of the delinquent in another Poor Law establishment.

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* At the new Children's Infirmary at Carshalton, Surrey, probationers are being experimentally taken between the ages of 19 and 26 years, a three years' training in the nursing of children's diseases is given, and certificates are granted after a final examination.

When a probationer is appointed she is invariably asked whether she wishes to work under the Superannuation Act or to "contract out of it," and it is very necessary that she should clearly understand its scope and provisions before signing her name to the declaration, for her decision, once taken, cannot be altered.

Poor Law Officers' Superannuation Act.—The original Poor Law Officers' Superannuation Act of 1896, which provided for superannuation allowances for all Poor Law officers and servants, made it compulsory for all in the service "to contribute annually for the purposes of this Act a percentage amount of the salary or wages and emoluments . . . such amount to be from time to time deducted from the salary or wages payable to him." Provision was, however, made whereby the then existing officers and servants might signify their intention not to avail themselves of the "provisions of this Act," in which event the contributions from such individuals would not be levied.

It was felt that the annual deductions, which varied from two per cent. to three per cent. of the added values of salary and emoluments, might press hardly on the nursing staff, especially on the probationers, the majority of whom presumably only intended to stay in the Poor Law service until they had obtained their certificates, and who would never therefore expect to benefit by the provision for superannuation allowances (as the pensions are termed), and whose salaries were exceedingly small. After some agitation an Amendment Act was passed in the following year (1897) whereby any female nurse, "including an assistant nurse and attendant on the sick or insane," was given the option of either working under the Act and paying the deductions, or of "signifying her intention not to avail herself of the provisions of the Poor Law Officers' Superannuation Act, 1896," in which case she "shall not be required to make any contributions or to submit to any deductions from her salary . . . and shall not be entitled to receive any superannuation allowance, gratuity, or other benefit under the said Act."

At the present time all nurses when first taking office under the

Poor Law are given their choice as to whether they wish to "avail themselves of the provisions of the Act," and they are the only officers who have the privilege of exercising this choice, deductions being made compulsorily from the wages or salaries of all the other officials, from the daily "scrubber" to the Medical Superintendent.

When a nurse reaches the rank, in some institutions, of Home Sister, and in all that of Assistant Matron, or Matron, she is no longer regarded as a "nurse" in the eye of the law, and automatically comes under the Act; but if she has previously contracted out her former period of service does not count for superannuation services.

According to the Act of 1897 any nurse or probationer wishing to contract out of the scope of the Act must signify her wish to do so **within two months** of the date of her appointment, and, as we have seen, the decision when once made is irrevocable.

If she decides to benefit by the scheme, as she surely will when she understands it, even though she may not be absolutely certain that she will stay in the service, a deduction from her salary will be made of two per cent. of the annual value of her salary and emoluments. The latter are differently assessed by different Boards of Guardians, and vary more with the status of the individual than the actual value received by her. Thus in one Union the emoluments of a probationer, which include board, lodging, washing, uniform, and tuition, are valued for superannuation purposes at £26 per annum, whilst those of a Charge Nurse or Sister are put down at £40, although the value of the two is precisely the same in every respect.

Deductions.—The deductions are usually made quarterly. A probationer earning £10 during her first year, and having her emoluments valued at £26 per annum, would thus pay 14s. 2d. during that year to the Pension Fund.

Advantages.—After serving under the Local Government Board in any capacity for a period of not less than 10 years a nurse (or other officer) would be entitled under certain conditions to claim a pension of one-sixtieth of the value of her average salary and emoluments during her last five years of office up to 40 years of service (the maximum therefore being two-thirds of the annual value of the appointment for the preceding five years).

Conditions.—The conditions which enable her to claim are the following:

1. Incapacitation from the duties of her office by reason of permanent

infirmity of mind or body, or of old age (if the latter, she must have completed 60 years of age).

2. Attainment of the full age of 60 years, coupled with an aggregate service of 40 years under *one or more* Poor Law Authorities in England and Wales.

3. Attainment of the full age of 65 years.

In the event of a person receiving a pension under any of the above clauses and subsequently obtaining work under the Local Government Board, the pension would stop automatically whilst the pensioner is in receipt of a salary. Wages paid, however, by other bodies not connected with the Local Government Board would have no such effect.

Service even for a few months under a Board of Guardians counts towards the necessary "years," and this continuity is not broken by the nurse's accepting other work between Poor Law appointments, although, of course, only the time actually spent under the Local Government Board can be reckoned.

Not only the infirmaries, but all establishments controlled by Boards of Guardians, come under "the Poor Law," so also do the fever hospitals, asylums, and other institutions managed by the Metropolitan Asylums Board, and any service in these is also reckoned as qualifying for a superannuation grant. Thus a girl might work for a year or even a few months as an attendant in a workhouse, then be trained for three years in a Poor Law infirmary, serve a few more years in a fever hospital, and then take an appointment as a Charge Nurse in an ophthalmic school, perhaps do private nursing for a year or two, and finally return to the Poor Law, and when her time came to be superannuated the sum total of the years spent as enumerated above, with the exception of the time during which she was employed in private nursing, would be taken as the basis of her "pension."

Institutions controlled by County Councils or borough authorities, such as Borough Isolation Hospitals, are not under the Poor Law, and do not, therefore, count as qualifying for the superannuation allowance.

Under special circumstances the guardians may, with the consent of the Local Government Board, "add a number of years, not exceeding 10, to the number of years which the officer or servant has actually served in the aggregate," so as to increase the superannuation allowance.

Uniform and washing.—Speaking generally the allowance of uniform in an infirmary is on a generous scale. An average amount would consist of 4 cotton dresses, 8 aprons, 4 belts, 6 caps, 8 collars, 8 pairs of cuffs yearly—the dresses and aprons being made in the needle-rooms.

In London, out of 23 infirmaries, 5 provide their nurses with outdoor uniform, and certain Boards include other items in the list of those provided. Thus the Chelsea Guardians give their nurses silent night slippers, and at the Wandsworth Infirmary they have a shawl and ward shoes in addition to their uniform.

The washing is done in the infirmary or workhouse laundry (the two not always having separate laundries). In the former the work is usually done by paid hands, in the latter pauper help is utilised.

Scale of pay.—The average salary of probationers may be reckoned at £10 for the first year, £15 for the second, and £18 to £20 for the third year of training.

A Charge Nurse's salary averages £26 to £30 per annum, generally rising by yearly increments to £35.

A Home Sister's salary averages from £30 to £40, and a Night Superintendent's about £5 higher.

The Matron's salary in a large infirmary usually begins at £100, and rises to £120 or £150. In the smaller institutions it rises from £80 to £100. The emoluments returned in various Unions for superannuation purposes range from £100 to £160 per annum.

The Assistant-Matron's salary varies from £40 to £60; the emoluments average from £50 to £70.

Beer money.—In many of the infirmaries, both metropolitan and provincial, all Sisters and those of inferior rank receive £2 annually as an addition to their salaries and wages; this £2 is termed "beer money" or "table money," the classification allowing the sum to be charged to the provision and not to the salary account. For this reason it is paid separately by the Steward, and not with the salaries by the clerk. Alcohol is rarely if ever provided for infirmary officials, but in some Unions those officers not entitled to beer money, i.e. those above the rank of Home Sister. are allowed aerated waters.

Scheme of training.—The course of training at those infirmaries which are classed by the Local Government Board as Major Training Schools is, of necessity, for three years. For the first six or nine months, in the majority of the infirmaries, probationers are on day duty, afterwards taking alternate spells, usually of some three months' duration, of day and night work. The customary allowance at night is one nurse

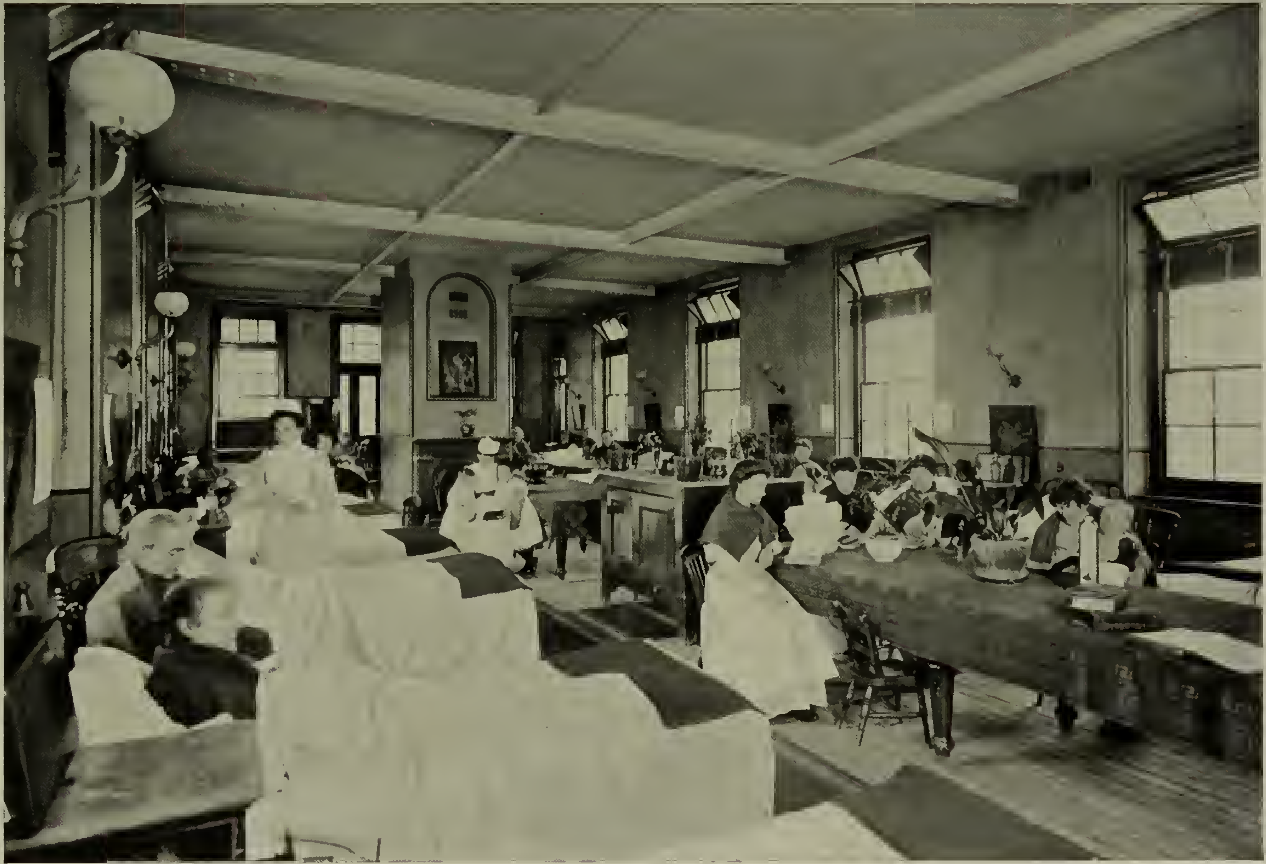


Photo: Pictorial Agency.

PLATE VII.—A WARD AT THE WANDSWORTH INFIRMARY.

to a ward of 30 beds, and as there are in every ward some acute cases, the night nurse's position is a very responsible one. The Medical Superintendent or his assistant visits each ward at night, and the Night Superintendents also go round each ward at least four times during the twelve hours that they are on duty.

A careful record is kept by each night nurse, and submitted by the Ward Sister to the doctor in the morning, showing any medicines or stimulants given, noting anything that may have occurred in the night, and recording the temperature of the wards. In the surgical wards, as there are no students, the Sisters are responsible for the dressings, and so teach their probationers the technique of aseptic treatment. Similarly in the medical wards the urine testing is all done by the nurses.

That familiar hospital feature, the patient's medicine bottle on a bracket over his bed, is absent in an infirmary ward, all drugs, however innocent, being kept securely locked away. The bowl of disinfectant for the nurse's hands, so often seen by the side of an infectious case in a hospital, is also conspicuous by its absence.

Patients.—In a Poor Law infirmary the patients are of much the same social class as those in a general hospital, but the percentage of chronic and senile cases is at least treble in the former institutions; hospitals which are medical schools cannot afford to have their beds filled with chronic cases which are not useful for clinical instruction, and these are drafted on to the nearest Poor Law infirmary.

In districts where there is no general hospital the Poor Law infirmary combines both functions, and admits accident and police cases without waiting for the intervention of the relieving officer. Such an infirmary will also admit patients for operations who would otherwise go to the nearest hospital. In all cases strict inquiries are made as to the patient's financial condition, and the expenses incurred are, if possible, recovered from those legally responsible for him. It is, however, an acknowledged fact that the upkeep of an infirmary is much heavier in districts where there is no local hospital, and the Mayor of Camberwell has publicly expressed his approval of the removal of King's College Hospital to his borough on the ground that it will relieve the Poor Law infirmary and therefore the rates in that locality.

The one great nursing difficulty in a Poor Law infirmary lies in this—that, unlike a hospital which can and does pass on cases that have proved undesirable, it must retain such patients within its walls until they are well enough to be drafted into the workhouse; such a patient may be exceedingly difficult to deal with, but unless he is actually insane he must, whilst ill, be treated in the wards.

The workhouses provide "infirm wards" for the old people who do not require skilled attention, but all helpless or paralysed patients, and those suffering from such chronic ailments as rheumatism and arthritis, are sent to the infirmary. It is by no means uncommon to see patients who have lain in the same ward for 15 or 20 years in a helpless condition. Such cases often test to the utmost a nurse's patience and tact, and it requires no mean skill to prevent the formation of bedsores. Again, inoperable cancer and tuberculosis in all its forms account for a very large number of patients, whilst in some infirmaries the number of mental cases is very great. The great majority of these are brought in for the purpose of detention under observation, until it is ascertained whether their mental condition requires asylum treatment, and it is therefore necessary that the heads of the nursing departments be conversant with the regulations for the management and restraint of the insane, put forth by the Lunacy Commissioners, who have authority to visit and inspect all mental cases which have been certified by a magistrate.

The male mental and certain other wards are generally staffed with male nurses and attendants.

Several infirmaries have lying-in wards, but in the majority of Unions these are in the workhouses, and training in some of them is recognised by the Central Midwives Board as qualifying for the C.M.B. examination; but in all infirmaries the "mothers and babies" are a difficulty. If a baby is admitted which has not been weaned, it is customary to admit the mother also, and she is supposed to help in the wards. Conversely, if a woman is very ill and has no one with whom to leave her child, the Medical Superintendent has the power to admit it.

A still greater difficulty lies in the rules made in various Unions to prevent the desertion of children. Suppose the parent or parents of a sick child are in the workhouse and wish to be discharged, ostensibly to seek work, more probably just to have a "day out," if the child is convalescent they *must* take him with them, and in a day or two, perhaps even that night, back they all come, the poor baby filthily dirty, and much the worse for its outing.

Theoretical teaching.—The theoretical teaching of probationers is extremely good in the majority of infirmaries. Courses of lectures are given generally from September to April, when the holiday season sets in, by the Medical Superintendent and his assistants, and by the Matron, Assistant-Matron, and Home Sister; the probationers are graded as 1st, 2nd, and 3rd year nurses, and special facilities are provided, so that they can all attend two if not three classes a week. The examiners are almost invariably independent medical men who do not know the candidates individually. In the granting of certificates the nurses' work in the wards and conduct generally are taken into consideration, reports being made every three months for this purpose by the Sisters to the Matron.

In some infirmaries the nurses have an examination at the end of the first, and again at the end of their third year; in others, one only at the end of their training. If a nurse fails to pass the examination, and her conduct and ward work have been fairly good, she is generally allowed another trial.

The hours of duty and leave of absence are practically the same as those in any hospital of a similar size ; if anything the duty hours are somewhat longer, averaging about 68 per week.

As there is not an out-patient department in a Poor Law infirmary, all patients are first seen by the medical man in a "receiving ward," and a provisional diagnosis made. As no patient is allowed to wear his or her own clothes in the infirmary, these must be carefully "booked" (all valuables being given into the Steward's custody), and after disinfection, stored away until the patient's discharge or death. As a large infirmary may admit annually from 4,000 to 5,000 cases, it follows that this booking of clothes is no inconsiderable part of the nurse's duty when in charge of the receiving ward.

All patients are bathed (if well enough), or washed in the receiving ward, before being admitted to the main building—a different method of procedure to that in a general hospital, where the first washing often takes place in the ward. In many infirmaries a "porter" is in charge of the male, and a "portress" in charge of the female wards ; in others a male nurse and a probationer in her third year respectively perform these duties.

Scrubbers.—In a general hospital the greater part of the rough work in the wards, such as the scrubbing of tables, etc., and the washing-up of the patients' mugs and table crockery, is done by ward maids, two of whom would be considered an average number for a ward containing

30 beds. In Poor Law infirmaries, with a few notable exceptions, this is not the case. Widows, who would otherwise require assistance from the rates or would have to be supported in the workhouse, are employed as " scrubbers " to clean the floors, corridors, staircases, etc., generally during the morning hours only, the nurses being responsible for the " washing-up " and all other ward cleaning. As a matter of fact they have very little if any more of this kind of work than have probationers in a general hospital, for the convalescent patients are expected to help the nurses as far as they can, as they are not discharged until really strong enough to be fit for work and to earn a living outside.

An infirmary scrubber's average hours on duty would be from 7.30 a.m. to 1.30 p.m. ; for this she would receive 12s. a week, less two per cent. deducted for superannuation purposes, but no food. She would be expected to keep the floors and grates clean in a couple of wards averaging 80 feet in length, and the scullery, lavatories, and bathrooms, besides taking a share of the outside work on the landings. If she were appointed as a whole-day scrubber, she would work the same hours as a laundry hand, 7 a.m. to 6 p.m., receiving 2s. 6d. a day and her dinner.

IV.—POOR LAW TRAINING INSTITUTIONS

The following is a list of the Poor Law institutions at which training may be given to qualify for the post of Superintendent Nurse under Article III. (3) of the Nursing in Workhouse Order, 1897, Local Government Board, and so recognised by the Local Government Board as " Major Training Schools " :—

METROPOLITAN INFIRMARIES

Bermondsey.
Bethnal Green
Camberwell.
Chelsea.
Fulham.
St. George's.
St. George-in-the-East.
Greenwich.
Hackney.
Hammersmith.
Holborn.
Islington.
Kensington.
Lambeth.
Lewisham.
London, City of.
Marylebone.
Mile End Old Town.
Paddington.
St. Pancras (North Infirmary).
,, (South Infirmary).
Shoreditch.
Southwark.
Wandsworth, St. John's Hill.
,, St. James's, Balham.
Whitechapel.
Woolwich.

Central London Sick Asylum District	Cleveland Street Asylum. Hendon Asylum.
Poplar and Stepney Sick Asylum District	Bromley Asylum.

PROVINCIAL INFIRMARIES

Birmingham.
Brentford.
Croydon.
Halifax.
King's Norton.
Kingston-on-Thames.
Leeds.
Leicester.
Liverpool (Highfield).
Nottingham.
Portsmouth.
Salford.
Sheffield.
Southampton.
Stockport.
West Derby (Mill Road).
West Ham.

PROVINCIAL WORKHOUSES

Ashton-under-Lyme.
Aston.
Birkenhead.
Brighton.
Bolton.
Bradford.
Bristol (Stapleton).
Bristol (Eastville).
Burnley.
Cardiff.
Ecclesall Bierlow.
Gateshead.
Liverpool (Brownlow Hill).
Manchester (Crumpsall).
Merthyr Tydfil.
Middlesbrough.
Newcastle-upon-Tyne.
Newport (Mon.).
Prescot.
Reading.
Rochdale.
South Manchester Township (formerly Chorlton Union).
South Shields.
Stoke-on-Trent.
Sunderland.
Swansea.
Toxteth Park Township (Liverpool).
Warrington.
West Bromwich.
West Derby (Walton Hill).
Wolverhampton.

POOR LAW INSTITUTIONS APPROVED BY THE CENTRAL MIDWIVES BOARD

The training in the following institutions is recognised as qualifying for the Central Midwives Board's Examination:—

METROPOLITAN

Fulham Union Infirmary	(St. Dunstan's Road, Hammersmith).
Greenwich ,, ,,	(Greenwich, S.E.).
Holborn ,, Workhouse	(Archway Road, N.).
Kensington ,, Infirmary	(Marloes Road, W.).
Lambeth Parish Workhouse	(Brook Street, Kennington, S.E.).
Lewisham Union Infirmary	(Lewisham, S.E.).
St. Marylebone Workhouse Infirmary	(Notting Hill, W.).
Shoreditch Union Infirmary	(Hoxton Street, N.).
Whitechapel ,, ,,	(Vallance Road, N.E.).
Willesden Workhouse Infirmary	(Acton Lane, N.W.).

ENGLAND (OTHER THAN LONDON)

Birmingham, Aston Union Workhouse.
Birmingham, King's Norton Union Infirmary.
Birmingham Workhouse Infirmary.
Blackburn Union Workhouse.
Bradford Union Hospital.
Brentford Union Infirmary.
Burton-on-Trent Union Workhouse.
Christchurch Union Workhouse.
Croydon Union Infirmary.
Dewsbury Union Workhouse.
Eastville Workhouse, Bristol.
Ecclesall Bierlow Union Workhouse.
Edmonton Union Infirmary.
Halifax Union Workhouse.
Hartlepool Union Infirmary.
Hastings Union Workhouse.
Kingston-on-Thames Union Infirmary.
Leeds Union Infirmary.
Liverpool, West Derby Union Infirmary.
Liverpool Workhouse Hospital, Brownlow Hill.
Manchester, Chorlton Union Hospital.
Manchester Workhouse Infirmary.
Mansfield Union Workhouse.
Newcastle-upon-Tyne Union Hospital.
Newport (Mon.) Union Infirmary.
North Bierley Union Workhouse, Bradford.
Nottingham Workhouse Infirmary.
Oldham Union Infirmary.
Portsmouth Workhouse Infirmary.
Prescot Union Workhouse.
Preston Union Workhouse.
Rotherham Union Workhouse.
Sculcoates Workhouse, Hull.
Sheffield Union Hospital.
Southampton Union Infirmary.
Steyning Union Infirmary, Shoreham.
Stoke-upon-Trent Union Hospital.
Walsall Union Workhouse.
West Ham Union Infirmary.
Wolverhampton Union Infirmary.
Worcester Union Workhouse.
York Union Workhouse.

SCOTLAND

Glasgow Eastern District Hospital.
Glasgow Western District Hospital.

WALES

Cardiff Union Hospital.
Llanelly Union Workhouse.
Merthyr Tydvil Union Workhouse.

IRELAND

Belfast Union Maternity Hospital.
Lurgan Workhouse Hospital.

V.—WORKHOUSE NURSING IN ENGLAND AND WALES

In the vast majority of Unions the number of sick persons in the workhouse is not large enough to necessitate a special infirmary, under separate control, and they are accordingly nursed in wards set apart for this purpose in the workhouse itself. The Local Government Board has from time to time issued special "Circulars" and "Orders" concerning the management of such wards, and in 1897 a "General Order" (No. 35,540) was issued consolidating former Orders and laying down strict regulations as to the appointment and grading of the nurses and attendants on the sick in workhouses and the qualifications deemed necessary for the office.

This General Order is still in force, and all Boards of Guardians in England and Wales are bound to observe its provisions.

Superintendent Nurse.—The regulations stipulate that in workhouses where there is a staff of three or more female nurses and assistant nurses, there must be a " Superintendent Nurse " in charge. Those Unions which, at the date when the Order was made, were employing a staff of three or more nurses were allowed, with the sanction —specially obtained in each case—of the Local Government Board, to choose one of the three as Superintendent Nurse if the Guardians considered her efficient, but any Board appointing a new Superintendent Nurse, or, by increasing its staff of nurses to three, coming under the rule, was directed to see that the person elected held the minimum qualification of " having undergone for three years at least a course of Instruction in the Medical and Surgical Wards of any Hospital or Infirmary being a Training School for Nurses, and maintaining a Resident Physician or House Surgeon."

The duties of the Superintendent Nurse are thus defined :—" To superintend and control the other nurses and assistant nurses in the workhouse in the performance of their duties " ; she is specially cautioned that whilst in all matters pertaining to the treatment of the patients she is under the control and direction of the Medical Officer, she is in *all other* matters bound to obey and recognise as her superior officer the Master or Matron of the workhouse to which she is attached. The position, therefore, of the Superintendent Nurse is one requiring much tact, otherwise there may be, and too often is, a good deal of friction between the medical and administrative heads of the establishment.

A Superintendent Nurse cannot, under this Order, be dismissed by the Guardians without the consent of the Local Government Board.

Nurse or Assistant Nurse.—A "nurse," or "assistant nurse" in a workhouse where there is not a Superintendent Nurse, must before appointment have " had such practical experience in nursing as may render him or her a fit and proper person to hold such office." The majority of Boards interpret this as meaning a year's experience in some hospital or infirmary, or even in a workhouse ward where there is a

Superintendent Nurse. The salaries offered to attract women for the post of nurse or assistant nurse in a workhouse are out of all proportion to those offered in infirmaries, it being recognised that as there is no opportunity of earning a certificate, and so qualifying for the higher posts in the service, some compensating advantage must be given.

The rate of pay averages from £20 to £30 per annum, with the usual allowances. In workhouses where there is a Superintendent Nurse, the Guardians are permitted to employ as assistant nurses girls who have had no experience in nursing, and many who are too young for a Training School are glad to pass the necessary time of waiting in this way, thus gaining a little insight into infirmary work.

Paupers are not permitted by the Local Government Board to act as either nurses or assistant nurses, or to " be otherwise employed in nursing any pauper in the workhouse who requires nursing." They may, however, with the consent of the Medical Officer, act as attendants in the wards if under the " immediate supervision of a paid officer of the Guardians."

This regulation, whilst permitting convalescents and other inmates to make themselves useful in the wards, should effectually prevent them from undertaking any duty involving even the slightest responsibility.

Concluding Note.—The Report of the Royal Commission on the Poor Laws foreshadows great changes in the treatment of the sick poor, and these in turn will most probably necessitate important alterations in the Poor Law Infirmaries, and the system of nursing now in vogue. The changes indicated are so vast that years must elapse before the machinery can be transformed, and at present it is unnecessary to do more than point out that considerable alterations will, in the future, undoubtedly be made.

CHAPTER IX

ARMY NURSING

By Sidney Browne, R.R.C.

Queen Alexandra's Imperial Military Nursing Service: Historical—The Service in the South African War — Reorganisation — Constitution of the Service—Qualification of Candidates—Terms of Appointment and Promotion—Pay, Pensions, and Allowances—Work of Military and Civil Nurses Compared. Queen Alexandra's Indian Nursing Service: Organisation—Pay and Allowances. Queen Alexandra's Imperial Military Nursing Service Reserve: Conditions of Entrance and Pay—Baggage—Advantages of an Army Reserve. Royal Army Medical Corps: Organisation—Training. Territorial Force Nursing Service.

I.—QUEEN ALEXANDRA'S IMPERIAL MILITARY NURSING SERVICE

This Nursing Service is a recognised branch of the Army, and in conjunction with the members of the Nursing Service for India, and with the assistance of the men of the Royal Army Medical Corps, it nurses the soldiers of the Empire in all parts of the world where our troops are to be found.

In war time, such as the present, the regular service is augmented by members of the Army Nursing Service Reserve and of the Territorial Force Nursing Service, who are only called up for duty for war, or any other great emergency. Small hospitals for the women and children of the soldiers are also provided in all large garrison towns; these are nursed by nurses not belonging to the regular Army service, but are supervised by the Matron of the nearest military hospital.

Historical.—The regular Army Nursing Service was started shortly after the Crimean War. The valuable services of Miss Florence Nightingale and her devoted band aroused general commendation, and when, after the war was over, new hospitals were built in response to Queen Victoria's strongly expressed desire, it was resolved that the experiment of employing women nurses should be made.

To Mr. Sidney Herbert, the able Minister of War at that time, is due the credit of sending the first trained nurses to nurse the sick and wounded soldiers in the military hospitals; he sympathised most keenly with the soldiers who were suffering from preventible causes during the Crimean War, and was determined, if possible, to remedy the evils. An attempt was made to form a corps of male nurses, but the plan had to be abandoned on account of the entire absence of material.

Though at first, as another writer has shown, there was great opposition to the employment of women in military hospitals, and all kinds of gloomy prophecies were made of the evils which would ensue, Mr. Herbert realised to the full the immense benefits which would attend the introduction of a properly qualified staff of well-disciplined trained nurses into the military hospitals, and was not to be deterred from making the experiment by any amount of opposition. The tidings of the failure of the commissariat department, the deficiency of food and clothing, and above all the deplorable neglect of the sick and wounded during the Crimean War had spread throughout the country, and great indignation was expressed at the suffering and loss of life. An appeal was made to the women of the Empire by the war correspondent, Mr. (afterwards Sir) William Howard Russell, who asked "if there were no devoted women amongst us, able and willing to go forth to minister to the sick and suffering soldiers in the hospitals at Scutari. Are none of the daughters of England at this extreme hour of need ready for such a work of mercy? France has sent forth her Sisters of Mercy unsparingly, and they are even now by the bedsides of the wounded and dying, giving what a woman's hand alone can give of comfort and relief. Are we to fall behind the French in self-sacrifice and devotedness?" Miss Florence Nightingale responded to the appeal, and offered her services at this critical time. She was a trained nurse and possessed great powers of organisation; she was, moreover, in advance of her time, and had grasped the immense importance of sanitary science and preventive medicine. In a short time Miss Nightingale had gathered a band of nurses round her and started for the Crimea. The first party consisted of six nurses from St. John's House, ten Roman Catholic nuns, eight Anglican sisters, and fourteen nurses from English hospitals. This was the initial stage of a great movement; it was looked upon with an unfavourable eye in many quarters, but of the real wisdom of the step there was afterwards no doubt, and since that time women have had their place in military hospitals.

The advance of the Nursing Service has been very slow, and it required another great war to arouse the country to the necessity of reforming the military hospitals, which were far behind the civil hospitals in many respects. The chief reason may have been the undue prominence given to the military side of hospital management. The orderlies, though they were nurses, were also soldiers with military duties such as drill and parades, their hours were arranged to coincide with those of other soldiers, and sufficient authority was not given to the Matrons and Sisters to organise the nursing duties.

Lady Jane Shaw Stewart had been sent to Chatham with a small band of trained nurses shortly after the Crimean War, and upon the removal of the Army Medical School to Netley was transferred to that hospital. When the Herbert Hospital at Woolwich was built in 1877, a Superintendent and trained Sisters were also appointed, and in 1883 a Royal Warrant was issued providing for a staff of trained nurses in all hospitals of 100 beds and over, but the number was inadequate. Netley with 879 beds had about ten Sisters, Woolwich with 655 beds, six, and Aldershot with 449 beds, four. The Sister in each division at Netley had frequently from 100 to 200 beds under her care, at Woolwich she had about 60 and sometimes more, and at Aldershot the same number. A large proportion of the patients in the Sisters' wards required skilled and careful nursing, and it was impossible for the Sister to do all that was necessary.

There were orderlies belonging to the Royal Army Medical Corps, but they were practically untrained nurses, and were constantly changed, so that the Sister, in addition to supervising the work of the orderlies, had to do as much of the actual nursing as was possible. She had many difficulties to contend with, the responsibility of carrying out the orders of the Medical Officer rested with her, but she had not sufficient authority given to her to organise the nursing duties. The orderlies were often absent from their wards at the busiest times, and there was no regular night staff, so the men on day duty also carried out the duty at night. Nor was she able to keep the wards and annexes clean and in good order, this latter duty being in the hands of a ward master. The orderlies working in the Sisters' wards were often young inexperienced lads, and were not of much help to her, though older men who had gained experience by observation and practice were very useful. There were, indeed, a few exceptionally good orderlies who really loved their work, and were gentle and refined by nature, and who made as good nurses as the very best women nurses, but none of them were trained nurses in the proper sense of the word. This was the state of things before the South African War.

In the South African War.—The first improvement recommended by the Principal Medical Officer in South Africa was an increase in the number of Nursing Sisters. The number laid down in the regulations for a general hospital with 520 beds was one Superintendent and eight Sisters. This was at once increased to one Superintendent and twenty Sisters. During the war 1,328 women nurses were employed by the British Government, of whom 63 belonged to the regular Army Service, 776 to the Army Nursing Service Reserve, and 489 were Colonials or locally engaged in South Africa. These nurses did admirable work, and proved conclusively that in any great war, when most, if not all, of the men would be required on the actual field of battle, women's services could be utilised for the main part of the nursing and ward work in all the hospitals.

The duties and experiences of the nurses during the war were most varied; they worked in the hospitals for our own troops at the base and in the prisoners' camps; they served in the stationary hospitals on the lines of communication, in the outlying stations, on the trek in one or two instances; in towns occupied by the enemy which were evacuated by our troops, and the sick of necessity left behind; on the hospital trains, on the hospital ships, and the troopships, and with the banished prisoners at St. Helena. The report of the work by the Royal Commission held after the war, was "that the nurses had shown great devotion, that many had lost their lives in the discharge of their duties during the war, and that scarcely any complaints had been made during the campaign with regard to the nurses, and that their general employment in fixed hospitals ought to be more generally recognised by the authorities and be provided for in future wars."

The Nursing Service, which before the South African War consisted of one Lady Superintendent, 19 Superintendents, and 68 Nursing Sisters, had, at the outbreak of the Great War in 1914, an authorised staff of one Matron-in-Chief, two Principal Matrons, about 30 Matrons, and some 400 Sisters and Staff Nurses. At its head is Her Majesty Queen

Alexandra. Next to Her Majesty in the Army List comes the Matron-in-Chief, who serves in the Adjutant-General's Department in the War Office, under the Director-General, and then follow the Principal Matrons, Matrons, Sisters, staff nurses, and specially selected non-commissioned officers and men of the Royal Army Medical Corps.

Reorganisation.—Shortly after the South African War, through the good influence of Queen Alexandra and Field Marshal Lord Roberts, who was then Commander-in-Chief of the Army, a War Office Committee was appointed to consider the reorganisation of the Army Medical and Army Nursing Services. It was presided over by the then Secretary of State for War, Mr. Brodrick (now Lord Midleton), and excellent regulations were drawn up and important changes for the improvement of the Nursing Service were made. Queen Alexandra assumed the Presidency of the Service, which for the future was to be under Her Majesty's immediate control. A Matron-in-Chief was appointed at the War Office, with a seat on the Advisory Board and on the Nursing Board, and she had as her assistants a Principal Matron, a secretary, and two or three War Office clerks. A large increase was authorised in the Nursing Service. Matrons were made responsible for the general nursing arrangements in the hospitals. Ward masters were abolished, and the wards were to be managed by the Sisters for the future. Authority was given to the Matron-in-Chief and to the Nursing Board to inspect and report upon the nursing arrangements in the military hospitals. The position of the whole Nursing Service was altered for the better.

Queen Alexandra also became President of the Nursing Board, attended the first meeting, and since that time has taken the greatest interest in the progress of the Service; to Her Majesty's influence may be attributed in large measure the rapid growth and the great success of the movement.

The Countess Roberts was the Vice-President of the first Board. The other members were the Director-General, Sir Alfred Keogh; the Matron-in-Chief, Miss Sidney Browne; two members nominated by Queen Alexandra—the Viscountess Downe and the Hon. Sydney Holland (now Viscount Knutsford); two civil Matrons (the first two appointed were Miss Monk, Matron of King's College Hospital, and Miss Gordon, Matron of St. Thomas's Hospital, their successors being the late Miss Isla Stewart, Matron of St. Bartholomew's, and Miss Cave, Matron of Westminster Hospital), and Colonel Bruce Skinner, R.A.M.C., Secretary.

The fact of there being two civil Matrons on the Board belonging to large training schools is a guarantee that the best nurses will be obtained for the Service, and that the nursing arrangements of the hospitals will be kept up to the standard of the best civil hospitals.

The regulations drawn up by the War Office Reorganisation Committee have all been carried out and various new regulations added as the needs of the Nursing Service required and the details of the work were realised. A scheme for the proper training of the non-commissioned officers and men of the R.A.M.C. was carefully drawn up, and a syllabus of lectures added, an examination instituted, and certificates of training granted. A special staff of Sisters and staff nurses was appointed to be sent to the smaller hospitals where there is no regular nursing staff to nurse any serious cases. They remain at different centres, and can be obtained at short notice on application to the War Office. An examination for Sisters before promotion to Matron was instituted, and arrangements have been made for Sisters and staff nurses who have been abroad for five years and seen little surgical work during that time to have special study leave for three months on full pay and allowances, and attend a good civil hospital selected by the Nursing Board for a course of instruction in the newest methods of surgical and medical nursing.

Regular inspection of the nursing arrangements of the hospitals is made by the Matron-in-Chief, the Principal Matrons and the members of the Nursing Board, and promotion in the service is determined by merit and not by seniority only.

The position of the Matron and the nursing staff has been considerably improved, and the pay and pensions of all ranks have been increased. New stations have been opened, new quarters built, and the equipment of the hospitals and quarters improved, and there is no question that our military hospitals in England and abroad are now amongst the best to be found anywhere. These great changes were carried out very quietly and with hardly any friction, for the present generation of Army Medical Officers have little of the antagonism to the Nursing Service which undoubtedly existed in early days, and they have helped in every way in carrying out the reforms. This was in a great measure due to the influence of the Director-General, Sir Alfred Keogh, who consistently gave the most generous support to any scheme for the improvement of the hospitals and the development of the Nursing Service.

The constitution of the Nursing Service, and the regulations for admission and promotion, are as follows :—

Constitution.—Queen Alexandra's Imperial Military Nursing Service consists of—

1. A Matron-in-Chief.
2. Principal Matrons.
3. Matrons.
4. Sisters.
5. Staff nurses.
6. Such non-commissioned officers and qualified orderlies as have been specially recommended.

Qualification of candidates.—A candidate for the position of staff nurse must be between 25 and 35 years of age, single or a widow, and possess a certificate of not less than three years' training in a civil hospital having not less than 100 beds.

She must be of British parentage, or a naturalised British subject.

The Matron-in-Chief is required to satisfy the Nursing Board that, as regards education, character, and social status the candidate is a fit person to be admitted to Queen Alexandra's Imperial Military Nursing Service.

The candidate is required to fill in the form of application which will be forwarded to her, and to produce the following documents :—

(*a*) Certificate of registration of birth ; or if this is not obtainable a declaration made before a magistrate by one of her parents or former guardians, giving the date of her birth.
(*b*) Certificate of training (in the original).
(*c*) Medical certificate.
(*d*) Dentist's certificate.

Before being appointed the candidate has, if physically fit, to appear before a sub-committee of the Nursing Board which makes recommendations as to her appointment. Arrangements are made for her physical examination at headquarters.

Terms of appointment and promotion.—A staff nurse is appointed provisionally for a period of six months. A special report is made on completion of three months' service, as to the likelihood of her proving suitable for permanent employment.

A further report is required at the end of the provisional service as to her work, conduct, and suitability in all respects for the service.

These special reports are made by the Matron of the hospital, and are forwarded to the War Office, through the officer in charge and General Officer Commanding in Chief, to be laid before the Nursing Board.

Staff nurses and Sisters are recommended for promotion by the Nursing Board, on the advice of the Matron-in-Chief. Before being recommended for promotion Sisters are required to pass an examination conducted by a Board, which consists of a Principal Matron as President, and two military Matrons as members; for stations abroad a Board is appointed to conduct the oral part of the examination under arrangements made by the Director-General, Army Medical Service. The written portion of the examination is supervised by a local Board, consisting of a Matron and two Sisters as members. This examination may be taken after completing five years' service in the rank of Sister.

To enable Sisters of Queen Alexandra's Imperial Military Nursing Service to procure the necessary certificate of administrative capacity, Sisters of four years' service and over in that rank may (as far as circumstances admit) undergo a two months' course of special instruction in Matron's duties.

Subjects in which the Board has to test the capabilities of the Sisters are as follows:—

PART I

The examination is written and oral; the written part consists of four questions, for which three hours are allowed.

The time allowed for the oral portion is fifteen minutes.

The examination consists of questions bearing on the following subjects:—

(*a*) The regulations affecting the Army Nursing Service, and the relation of its members to the Medical Officers, nursing staff, and patients of hospital; methods of conducting official correspondence and of keeping accounts.

(*b*) The distribution of duties of the nursing *personnel* in hospital in peace and war, and the numerical proportion of nursing staff to patients under varying circumstances.

(*c*) The special circumstances affecting nursing in hospital on the field, hospital ships, ambulance trains, convalescent establishments.

(*d*) Responsibility of the nursing staff as to equipment, bedding and linen.

(*e*) The supervision of nursing quarters and their domestic economy.

(*f*) The sanitation, in accordance with the regulations of all premises under their charge; ventilation, warming, and methods of cleaning.

(*g*) Precautions necessary in connection with nursing all cases of infectious disease.

(*h*) The nursing in hospitals for women and children.

PART II

To deliver before the Examiners a lecture adapted to the training of orderlies of the Royal Army Medical Corps, on one of the subjects contained in Standing Orders for the Royal Army Medical Corps.

Written questions on the lecture (suitable for the orderlies attending the same) must be handed in at the time of examination.

Marks for the examination :—

Written	75
Oral	50
Lecture	25
Total	150

Candidates in order to qualify must obtain 50 per cent. of marks both in the oral and the written portion of the examination.

Marks are allotted by each examiner independently ; the mean of these marks indicates the final result.

A week before the Board is held each Sister must send a certificate to the effect that she has during the twelve months previous to the date on which the examination is held undergone special instruction, in duties of Matrons, by the Matron, for a period of two months, or has discharged Matron's duties for two months. This certificate must be signed by the Matron of the hospital in which the Sister is serving.

No Sisters are promoted to the rank of Matron until they have passed this examination.

Pay, Pensions, and Allowances.—The pay and allowances of the Service are as follows :—

RANK	*PAY PER ANNUM.*			*Board and washing allowance per annum.*	*Uniform allowance per annum.*	*Fuel and light allowance, when fuel and light are not provided.*	*Lodging allowance, when quarters are not provided.*	*TOTAL ANNUAL EMOLUMENTS.*	
	Initial rate.	*Annual increment.*	*Maximum.*					*Minimum.*	*Maximum.*
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	* £ s. d. (average)	£ s. d.	£ s. d.	£ s. d.
Staff Nurse ...	40 0 0	2 10 0	45 0 0	39 0 0	8 0 0	13 3 6	41 1 3	141 4 9	146 4 9
Sister	50 0 0	5 0 0	65 0 0	39 0 0	8 0 0	13 3 6	41 1 3	151 4 9	166 4 9
Matron ...	75 0 0	10 0 0	150 0 0	39 0 0	8 0 0	13 3 6	41 1 3	176 4 9	251 4 9
Principal Matron	175 0 0	10 0 0	205 0 0	39 0 0	8 0 0	18 16 0	54 15 0	295 11 0	325 11 0
Matron-in-Chief	305 0 0	15 0 0	350 0 0	39 0 0	Nil.	26 7 0	73 0 0	438 7 0	488 7 0

In addition to the above, the necessary establishment of servants is provided when servants' allowance is not drawn.

Charge pay is granted to a Matron or Sister on the undermentioned scale :—

In charge of 300 beds and over ... ... £30 per annum.
" from 200 to 299 beds ... ... £25 "
" from 100 to 199 beds ... ... £15 "

Additional allowance of 3s. to 6s. per diem is drawn on foreign or active service by all ranks.

* Or such other amounts as may be fixed from time to time by Army Orders.

Work of military and civil nurses compared.—There is a great deal of difference between the work of an Army nurse and that of her sister in a civil hospital, although the actual nursing and the arrangements of the wards are very much the same, and are carried out in the same order in a military hospital, Sister, staff nurse, and orderly answering to Sister, nurse, and probationer in a civil hospital. An Army nurse has not so much cleaning to do as a civil nurse; there is a "general duty private" on duty in every ward in addition to the orderly, and he does the rougher cleaning. The work is not so hurried as in a civil hospital, so the Army Sister and nurse have more time to devote to their patients, and to their individual needs; the afternoons are freer, as there are no visiting honorary physicians and surgeons, and no resident house physicians and surgeons, and no students. The work is carried on by a Senior Medical Officer, who is in charge of the hospital, and by officers in charge of the divisions and wards, who visit the hospitals in the mornings, and also pay a visit in the evenings. A junior orderly officer remains on duty in the hospital during the day and night, and can be called if required.

The patients, though this may be difficult to credit, are less bound by red tape than they are in a civil hospital. They are allowed to smoke and play cards and other games; and as they usually belong to a regiment stationed in the same garrison they are constantly visited by the officers and men of the regiment. Dining-rooms are provided for the patients, in the larger hospitals, and no patient who is allowed out of bed has his meals in the ward. There is generally a garden where they can have exercise; there is a reading-room supplied with papers and books; the military bands are sometimes sent up to the hospitals to play in the grounds for the amusement of the patients; and useful employment for the convalescents, such as wood-carving, knitting, making belts, and other light remunerative employment has recently been started by Lord Methuen, and has proved a great boon to the patients.

The Army nurse is relieved from one duty which is not pleasant in a civil hospital: her patients are clean in their person and clothes when admitted (except on active service, when water sometimes is unobtainable). They come into hospital in their uniform, which is placed in the stores, and their underclothes are washed and kept ready for their use when they are discharged. A clean suit of clothes is issued to each patient on admission, so that they do not wear their own clothes in the ward, as civil patients are obliged to do.

The members of the Service have more of a home life when they are off duty than is to be found in a civil hospital; they all live together in their own house, and in some stations they have a garden of their own, and a tennis ground; they engage their own servants; entertain their guests, and join, as far as their duties will permit, in the society and recreation of the station in which they live. The pay of all members of the Service is better than in civil life; a fairly good pension can be obtained at the age of 50 or 55. The work is interesting, and varied; the surgical cases and operations in the larger hospitals are numerous, and enable the Sisters and staff nurses to keep up to date in their own department with the most modern developments of surgical science, and in the medical work their experience is wider than can be gained in any other hospital, for they come into contact with all kinds of diseases, such as cholera, malaria, dengue, beri-beri, Malta fever, and sleeping sickness, which fortunately for this country are not seen in England except in the hospitals for seamen and in those for tropical diseases. Thus a member of the Service has a varied experience which ought to have a broadening effect upon her mind and character. She has many opportunities for seeing foreign countries, for she must go abroad wherever she is ordered. After she has been some time in the Service she cannot go to a fresh station without meeting old friends in the Service whom she has known in other places. Moreover, she is treated with the greatest kindness, and is not allowed to feel lonely and isolated in any foreign country.

On the other hand a civil nurse has some advantages. Her work is often more interesting than that of a military nurse; her patients are generally more acutely ill when admitted; she sees more operations, and is not sent to small hospitals where there is comparatively little nursing to do; nor is she obliged to go abroad if for any reason she wishes to remain in this country. She may find it easier to teach women probationers than men; and, further, there are not the constant changes in a civil hospital which take place in a military hospital, where everyone, from the Principal Medical Officer and Matron to the junior staff nurse and orderly, is liable to be ordered on foreign service or to another part of the kingdom.

Any nurse wishing to enter the Service applies in the first instance to the War Office, Whitehall, S.W., either by letter to the Secretary, or personally to the Matron-in-Chief. A good many who apply are not accepted, for the number of applicants is large, and only the best are chosen, but it does not follow that because an applicant is not accepted by the Nursing Board that she is not a good nurse. She may be quite suited for other branches of nursing, if not for the Army.

If a candidate fulfils the conditions and is accepted by the Nursing Board, and approved by the Army Council, she is then gazetted into the Army Nursing Service, and is sent to any military hospital when there is a vacancy. Her appointment is provisional for the first six months, but if she proves suitable her appointment is confirmed, and she enters the Service permanently. Not being bound for any length of time she can leave when she wishes, but if she likes the work, and is found suitable and has good health, she can remain in the Service until she retires on a pension.

A Sister in the Army must be a cultivated, refined woman, not afraid of responsibility, and able to exercise control over men as well as women. She should be devoted to her work, gentle, sympathetic and unselfish, and not too fond of pleasure. She must not be of a nervous or irritable disposition, but be able to bear with equanimity the vicissitudes of her life. She has to do her work in all climates, amidst the trials of great heat and cold, dust and flies, etc. She may have to live in huts or under canvas, with few servants, and at times without proper appliances for her nursing duties, and under circumstances which demand great powers of adaptability and self-control; but if she be suited to the position, her life is a very happy one. When she retires she may feel justly proud of receiving from the hands of her sovereign the Royal Red Cross, and of being entitled to wear a long row of war medals, but she prizes still more the knowledge that she has been a help and comfort to many a good soldier in his hour of need.

II.—QUEEN ALEXANDRA'S INDIAN NURSING SERVICE

The Nursing Service in India, now called Queen Alexandra's Indian Nursing Service, was started in 1888, mainly through the exertions of the Countess Roberts, who had had very much at heart for many years a scheme for supplying skilled nursing for the soldiers in the military hospitals in India. When Lord Roberts was made a member of the Viceroy's Council, one of his first acts was to support Lady Roberts's recommendations, which were sent home to the Secretary of State, strongly backed by Lord Dufferin and his Council, and were approved by the Government. Now every large hospital in India has a staff of trained nurses. As Lady Roberts pointed out in her first appeal, "When one considers what an expensive article the British soldier is, costing as he does £100 before landing in India, it seems certain that on the score of economy alone, altogether setting aside the humane aspect, it is worth the State's while to provide him with the skilled nursing care which up to now has saved so many lives."

Prior to the advent of the Sisters the nursing in the Indian military hospitals was carried out by native hospital corps men with British soldiers for bad cases. The latter were untrained and inexperienced, though here and there a soldier gained a nursing reputation, and was in request among the men of his corps. The orderlies and ward servants were under the immediate control and supervision of a medical subordinate, who was dispenser, and, on occasion, ward sister, house surgeon, and sergeant-major.

The members of the Medical Subordinate Corps, called apothecaries till 1894, but now known as Assistant Surgeons, receive a four years' medical course, and are generally very good physicians for tropical diseases. In the absence of the medical officers they are medically responsible for the patient. The undefined position of the Sister with regard to this corps, and the apparent clashing of their duties, created at times some unnecessary friction, but the difficulties seem to have been largely overcome, and now it is the Sisters who train and supervise the orderlies. An eight-hours' system of reliefs introduced by one of the first Sisters for the orderlies seems to have been generally adopted, though there is some doubt if this is the best system upon which to work.

Organisation.—For administrative purposes the Service is divided into four Commands, each under a Lady Superintendent with the exception of Burma, which is now deprived of such direct supervision. Each Lady Superintendent has three to eight stations in her circle with a Senior Nursing Sister in charge at each out-station. The complement for a station is in proportion to the number of beds—124 being the smallest, with three Sisters, 471 being the largest, with six Sisters and a Lady Superintendent.

The Sisters' work is very varied, sometimes exceedingly arduous, and, on the other hand, sometimes very light. The general arrangement is for two, or even three, to go on duty in the early morning, and to reduce the number on duty during the day or night. In a few stations the Sisters have individual charge of a ward, and this gives general satisfaction, but as a rule the Sisters relieve each other in the ward in which the most serious cases are placed.

The hospitals for women and children have a Matron, generally a soldier's wife trained as a midwife, in charge, with extra help when considered necessary. Her pay is 30 Rs. per month with free quarters, rations, fuel and light. The Sisters exercise general control, which often means solid help when they can be spared. A good deal has been done of late years for the women's hospitals, but more improvements are necessary before they are brought up to the standard of the hospitals of the same kind in England.

Pay and allowances.—These are as follows:—

Lady Superintendent . . .	300 Rs. per month.
Senior Nursing Sister . . .	200 Rs. ,, ,,
Nursing Sisters	175 Rs. ,, ,,

The Senior Lady Superintendent in India receives in addition 50 Rs. per month, and a Government Order of May, 1907, allows an increase of 25 Rs. per month to a Senior Nursing Sister, or a Nursing Sister, after five years' service.

Sixty days' privilege leave is granted annually, and after five years in India, one year on two-thirds pay, with free passage to and from England.

Application for admission to the Service is made to the Secretary of State for India, India Office, Whitehall, S.W.

A Nursing Board consisting of a civil hospital Matron and a retired Lady Superintendent of the Nursing Service interviews and reports on candidates. After each Board meeting a list is drawn up to which the Secretary of State in Council has access, and from which he makes appointments as vacancies occur.

There are, of course, drawbacks to work in India. The climate is trying to the health and to the temper of a good many nurses, and those naturally nervous and irritable should not go out. There are, however, compensations. People show friendliness and kindness to a degree seldom met with elsewhere, and above all there is the consideration that in the British Army in India there is room for the work and influence of good women, and that the British soldier recognises in the Sister not only a nurse but a friend.

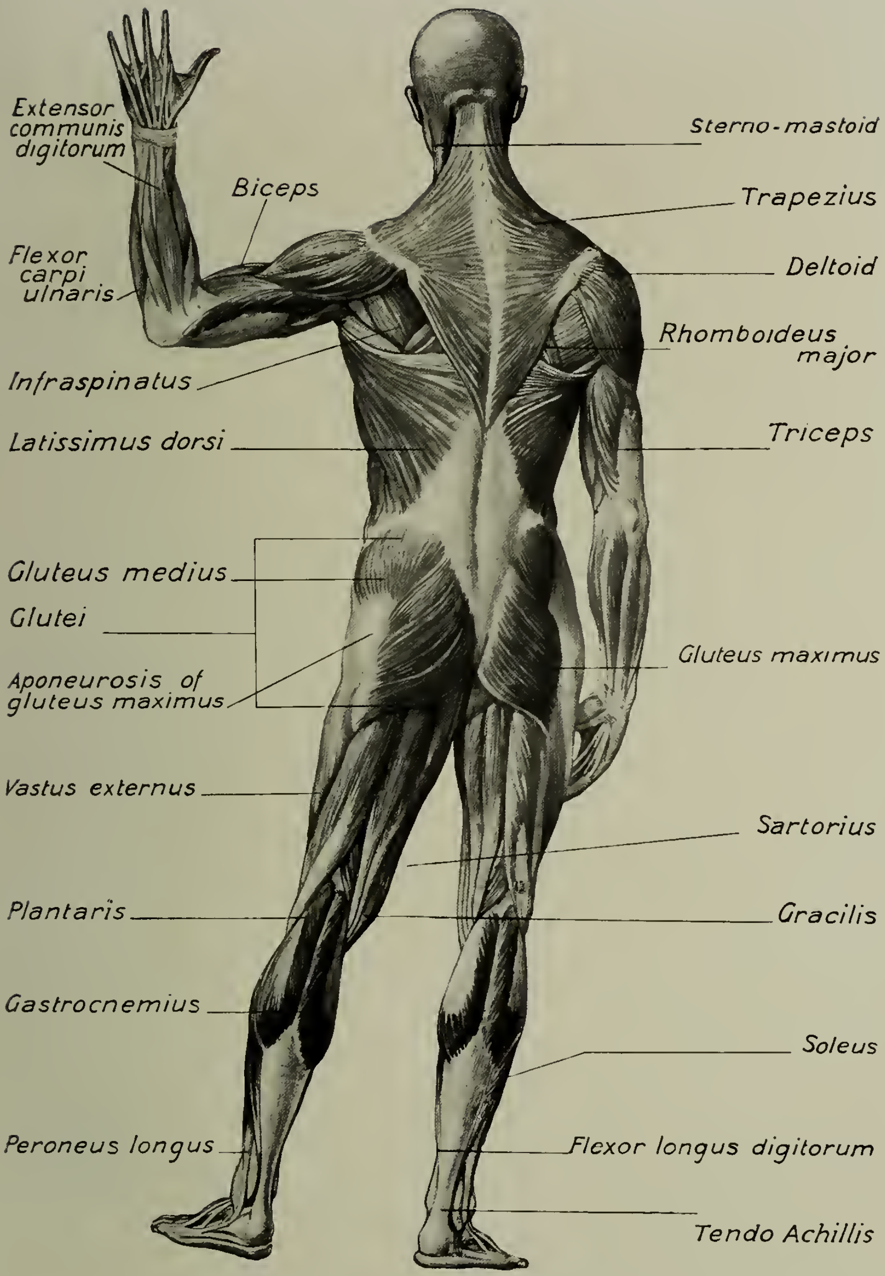


PLATE XII.—MUSCLES OF THE HUMAN BODY, BACK VIEW.

III.—QUEEN ALEXANDRA'S IMPERIAL MILITARY NURSING SERVICE RESERVE

This Reserve is an important adjunct to the regular Service. The hospitals could not be maintained in an efficient state in time of war without additional nurses, the number of Matrons, Sisters, and staff nurses in the regular Service being strictly limited to the requirements of the permanent military hospitals, and leaving no surplus for war, nor for any other national emergency.

The members of the Reserve are only called up for duty in war time; they follow their ordinary nursing avocations at other times, receiving no pay from the State. When war breaks out a large number of additional base and stationary hospitals are required, generally composed of tents with special equipment suitable for transport. The Nursing Staff for the war establishment of a general hospital of 520 beds consists of 1 Matron, 16 Sisters, 26 staff nurses, and 66 ward orderlies; or if it is found necessary to employ a smaller number of orderlies, it is 21 Sisters, 68 staff nurses, and 28 ward orderlies. The staff of a stationary hospital for the lines of communication with 200 beds is, besides the Matron, 6 Sisters, 10 staff nurses, 31 ward orderlies, or 10 Sisters, 25 staff nurses, and 14 ward orderlies.

Hospital ships and transport ships and hospital trains have also to be provided with a nursing staff. The members of the regular Nursing Service know in time of peace the post allotted to them if war breaks out, and the rank they will hold. The staff nurses, if required, take Sisters' duties, and the Sisters are appointed Matrons, their places at home being filled by members of the Reserve.

When war is on a large scale the Reserve in their turn also proceed on active service. Thus, nearly 1,300 additional nurses were employed during the Boer War, and a much larger number has, of course, been required in the Great War which broke out in 1914.

Conditions of entrance and pay.—The first Army Nursing Service Reserve was inaugurated by H.R.H. Princess Christian in 1897. This Reserve did splendid work during the South African War, and most of its members have been enrolled in the newly organised Army Reserve of Queen Alexandra's Imperial Military Nursing Service, which is now the recognised first line Nursing Reserve of the Army, the Territorial Force Nursing Service (page 166) being the second. Those wishing to join apply for forms to the Secretary, War Office, Whitehall, London; the age of admission is from 25 to 45. The candidates must hold a certificate of three years' training from a recognised training school, and must be recommended by their Matrons. They receive the same pay when called up as the regular staff.

Members of the Reserve, when called up for duty, are attached to the regular Service, wear a uniform similar to that of the Army Sisters and nurses, and are bound by the same regulations.

Baggage.—When proceeding on active service all ranks, both of the regular Service and the Reserve, have to take as little baggage as possible. Under the new regulations the whole of the furniture and equipment of their tents is carried in a canvas kit bag of moderate size. This bag contains a portable camp bedstead, a pillow and waterproof sheet, a wash-stand with basin, bath and bucket, and a folding chair, and is similar to the regulation tent equipment of an officer.

A list of the personal baggage of each member has also been carefully drawn up, based upon actual experience during the long Boer War; this baggage can be packed in a cabin trunk. No dress is allowed but uniform and a riding habit, so that if a nurse is ordered up country she can take with her all that is necessary for her use.

Advantages of an Army Reserve.—The principle of a Reserve is excellent. Experience has proved that nurses cannot be properly selected if all arrangements are left till the actual time of war. A large number of suitable and unsuitable applications have to be dealt with, and the credentials of those who apply verified; the Matrons must be communicated with, and the candidates medically examined. All this takes time, and there is little time available when war has broken out. During the South African War, which lasted over two years, nurses were telegraphed for, and had to be sent out at twenty-four hours' notice, and it was extremely difficult, and often impossible, to select the right kind of women for the work at such short notice.

A small retaining fee is given to every member of the Reserve on condition that she undertakes to forward periodically to headquarters her address, medical certificate, and also some guarantee from the Matron of her continued fitness for active service.

Members are also allowed to volunteer for a short period of training in a military hospital, or field camp, for a week or a fortnight every year. The nurses enjoy this experience, and they find it much easier to carry out their duties when called up on active service. They learn the differences of rank of the men of the Royal Army Medical Corps, over whom they are placed, and their respective duties; how best to obtain the supplies and equipment for their wards; the sanitation of a camp; the maintenance of discipline; and various other things which do not come within their experience in a civil hospital.

IV.—ROYAL ARMY MEDICAL CORPS

An important part of the nursing of the military hospitals is performed by the men of the Royal Army Medical Corps, which was started shortly after the Crimean War, and was reorganised after the South African War.

Organisation.—The men belonging to the R.A.M.C. enlist in the Army and join the depôt at Aldershot. The Corps is divided into four sections, as follows:—

1st, Nursing Section.
2nd, Cooking Section.
3rd, Clerks' Section.
4th, General Duty Section.

The men belonging to each section are trained for their special duties, so that men employed in rough, dirty work, "fatigues" as they are called in the Army, are not allowed to go into the ward and undertake nursing duties. A cook is trained as a cook, and becomes expert in his work, a clerk as a clerk, and a nurse as a nurse.

Training.—The men of the different sections commence their training at Aldershot at the preliminary school, attend lectures and receive practical instruction from the officers, Sisters, and non-commissioned officers belonging to the school. They all learn a certain amount of elementary nursing, field cooking and drill. When the recruits have completed their preliminary training they are divided into different classes and join the section for which they are best suited. Those who join the nursing section commence their regular course of training in a large military hospital and receive systematic instruction for three years. They are examined by a Board of Officers and a Matron when they have completed their training, and if they pass their examination and are certified to be of good character, they receive a certificate of training as a nurse.

The syllabus of instruction is very thorough and comprehensive. Each orderly learns the best means of sterilisation and disinfection, the dispensing of medicines, and the care of instruments, laboratory work, and elementary hygiene, X-rays, and electricity. He can also learn massage and qualify for the examination held by the Incorporated Society of Trained Masseuses. A certain number of the best and most reliable men in the Corps are admitted into Queen Alexandra's Imperial Military Nursing Service, and wear the badge and ribbon of that Service.

V.—THE TERRITORIAL FORCE NURSING SERVICE

This Service forms, as we have seen, the second Nursing Reserve of the Army, and provides nurses for the hospitals of the Territorial Force. It was inaugurated in 1908.

Organisation of the Territorial Force.—The whole country has been grouped into twenty-three regimental districts, in each of which there was to be a hospital containing 520 beds. They were not to be new buildings, but some existing building, such as a great hotel or college or school, was selected, and everything necessary for its service and equipment was in readiness.

The medical staff, consisting of the most eminent medical men in each district, volunteered their services, and the Territorial Force Nursing Service forms the nursing staff.

The establishment of this Service consists of a Matron-in-Chief at Headquarters, Principal Matrons, Matrons, Sisters, and Nurses. The Service is a very popular one. Very soon after the date of its inauguration every post was filled, and in a good many instances civil Matrons accepted posts as Sisters, and civil Sisters as Nurses, and in addition to the full number enrolled, a good many names of fully qualified nurses have been placed on a reserve list, so that vacancies can be filled at once. The professional and personal qualifications of the members are carefully investigated every year, and reports as to their continued fitness for active service are obtained. This large body of over 3,000 well-trained and disciplined women, ready to be called up for duty at twenty-four hours' notice, proved to be a most valuable asset of the medical organisation of our Army when, like a clap of thunder, the War of 1914 burst upon Europe. By the middle of 1915 the number had swollen to over 4,000.

Conditions of Service.—The conditions of service for nurses are three years' training in a recognised hospital, consent of the Matron if attached to a hospital, a satisfactory record, and good health. Nurses must not be under 23 years of age at date of enrolment, and must retire at the age of 45. The Principal Matron is usually the Matron of the largest hospital in the neighbourhood. A Matron must have held the post of Matron, or Assistant Matron, or Sister, and she retires at the age of 50.

The nursing staff of each hospital consists of 92 members, namely, 1 Principal Matron, 1 Matron, 22 Sisters, and 68 nurses, and no larger number was to be called up for duty at one time, but in order to provide for all contingencies that might arise, the number of nurses borne on the roll of each hospital was 121, being 1 Principal Matron, 2 Matrons, 30 Sisters, and 88 nurses.

No pay is given to any member of the Service in peace time, except to the Principal Matrons, and Matrons who attend a Military Hospital triennially for training, during which time they receive the same pay as members of the regular Service of corresponding rank. On mobilisation, the pay for all ranks is the same as that for the regular Service. Every member receives a silver badge designed by Her Majesty Queen Alexandra, and is entitled to wear the uniform of the T.F.N.S., a blue-grey dress with a short cape faced with scarlet. Members are not obliged to provide uniform in time of peace, as no allowance for uniform will be given until the Service is mobilised.

Local Committees.—A working committee of ladies was appointed by the County Associations in each area to assist in organising the hospital, and enrolling the nurses, one member of the committee being a Principal Matron, who keeps the roll of nurses, revises it every year, and is responsible that only fully qualified and reliable nurses are brought before the committee for enrolment.

War Office Advisory Committee.—The Service is organised and supported by an Advisory Council at headquarters, consisting of Her Majesty Queen Alexandra as President, the Dowager Countess of Minto as Vice-President, the Director-General of the Army Medical Service as Chairman, Miss Haldane as Vice-Chairman, the Matron-in-Chief, Territorial Force Nursing Service, the Matrons of five of the largest hospitals in London, the Head Superintendent of Queen Victoria's Jubilee Institute for Nurses, and other ladies interested in nursing.

CHAPTER X

MALE NURSING

By M. C. Walshe, J.P.

Training of Male Nurses—Special Hospitals—Military Hospitals—Poor Law Infirmaries—Asylums—The Training at Berry Wood—The Examinations of the Medico - Psychological Association—The Present and Future of Male Nursing—A Tribute to Pioneers.

To write of Male Nursing is a difficult task, since, judged by the standards which we apply to women nurses, the skilled male nurse is thought by some to be practically non-existent. That this is not so will, I hope, be clear from what follows.

It is not so very long ago since the sort of treatment immortalised in the person of "Sairey Gamp" held full sway in the various hospitals of the kingdom, and there are still people who imagine that the male nurse of to-day has only reached a stage of development parallel to that of the female nurse when she was just emerging from the condition described by Dickens, whereas the fact is that the well-trained male nurse is the equal in skill and knowledge of the average nurse of the other sex turned out by the large general hospitals.

I am bound to say that the unhappy experiences of various general hospitals with their male nurses have, on inquiry, been found to be due to the sources from which the men, picturesquely styled "male nurses," have been obtained. The Corps of Commissionaires has in the past been drawn upon, and to this date the Church Army supplies male assistance to one of our hospitals. Now such men are in no real sense of the word nurses, and the work which they are called upon to perform is not nursing; yet it is by confusion with such untrained and poorly-paid persons that the reputation of the genuine male nurse has suffered.

TRAINING OF MALE NURSES

There are four principal openings for men wishing to train as nurses; taken in the order of their importance they are the following:—

Borough and County Asylums.
Poor Law Infirmaries.
Military Hospitals.
Special Hospitals.

I will first dispose of the less important and then deal more fully with the training obtained at the asylums.

Special hospitals.—The number of men turned out by these is so small that from our present point of view they are of comparatively no importance.

Military hospitals.—Although, as another writer has pointed out, the syllabus of instruction in these hospitals may be comprehensive, and the practical training systematically carried out, I cannot believe them, speaking broadly, to be a success as training schools for *private* male nurses. For one thing, the class of work to which the men, as a rule, are accustomed is different from that met with in private nursing. What is, I venture to think, of much greater importance is that they completely lack training in the nursing of mental diseases, a class of work which constitutes the large bulk of private nursing as far as men are concerned. Finally, the elementary knowledge which they possess of "compounding medicines" is not without its disadvantages, for it exposes them to the temptation of presuming to prescribe for the patient or his friends—in fact some of them have been known to go so far as to describe themselves as "doctors."

Poor Law infirmaries.—These might be extremely valuable training schools for male nurses, but unfortunately the superintendents of these institutions seldom interest themselves in the men, and consequently they do not attain nearly all the knowledge or experience which the infirmary is capable of affording. The Poor Law authorities do not understand the situation and suggest nothing that might possibly be an extra tax on the Medical Superintendent, who, it must be allowed, has quite enough to do. Thus efficiency suffers at the expense of economy. However, it may be said in favour of the infirmaries that most of the men employed in them must have had previous asylum training, and, this, in conjunction with the experience they obtain in the infirmary, certainly adds to their efficiency as nurses.

The asylums.—These are a long way ahead of any of the other Training Schools that have been mentioned. The training in such modern asylums as Claybury, Berry Wood, or the Cork District Asylum, to mention but three, is extremely good. In these the men obtain a good knowledge of general nursing with the additional advantage of training in mental nursing.

A want of uniformity in standard is the drawback to these Training Schools. While the Medical Superintendent in one asylum may take the keenest interest in the training of his men, and may prepare them for the examinations of the Medico-Psychological Association, another may give no lectures at all, and his men are not prepared for any examination, the consequence being that the members of the staff are never eligible for higher and more responsible posts in other asylums, and thus the Medical Superintendent is spared the trouble of having vacancies to fill.

An account of the system of training in a good asylum will demonstrate how unjust are the strictures which are sometimes passed on the capability of the male nurse.

The course of training extends over three years, just as in the case of a hospital at which women are trained. At the end of each year the nurse must pass an examination, written, oral and practical, and the candidate's everyday work is taken into consideration. The standard of these yearly examinations is a high one, and questions on anatomy, physiology and general and mental nursing are included.

The following questions are taken from papers set at Berry Wood as long ago as 1893, and since then the standard has been continuously rising:—

> What is a bedsore ; in what class of patients are they most likely to occur ? What precautions would you take to prevent them, and how would you dress them ?
>
> What are the dangers to be guarded against in a case of (*a*) rheumatic fever, (*b*) scarlet fever ? To what points should a nurse pay special attention in each case ?
>
> Mention some preventible cause of diarrhœa in the insane. What important points would you note to report in a case of diarrhœa ?

At the end of his three years' training the nurse is eligible for the examination of the Medico-Psychological Association. The subjects treated in this examination are those already mentioned, and I may be pardoned for giving a selection of the questions set at such an examination as far back as 1897, as they may help to dispel the too-prevalent idea that the male nurse is merely a "keeper."

> State the name and relative positions of the larger organs in the cavities of the thorax and abdomen.
> What are the functions of motor and sensory nerves ?
> What rules should be followed in the bathing of patients ?
> What precautions should an attendant take on being sent to take charge of a patient in a private house ?
> Define an illusion, a delusion and an hallucination : give examples of each. What are their respective values in mental diseases ?
> What are the special precautions to be taken in a case of general paralysis ?

From these specimen questions it will be seen that the qualified male nurse of to-day must be well grounded in the theory and the practice of both general and mental nursing.

THE PRESENT AND FUTURE OF MALE NURSING

The present.—Male nurses now occupy an important position in the nursing world—indeed far more important than is generally imagined—and this on account of the remarkably rapid increase in their numbers since the examination of the Medico-Psychological Association was instituted, more especially during the last ten years.

Twelve or fifteen years ago male nurses were employed in scarcely any but mental and alcoholic cases ; and even now these constitute the bulk of their work ; but there is an increasing demand for male nurses for cases which require the periodical passing of a male catheter. For this class of work a man is obviously more fitted than a woman, and the same may be said of cases in which the patients are heavy or require lifting. For patients travelling a male nurse may act as valet and be useful in ways in which it is impossible that a woman should be equally helpful.

Those who are in a position to form an opinion would not hesitate to say that a little more keenness on the part of Medical Superintendents and Poor Law authorities in training their men and in bringing before them the advantages of nursing as a career would be conducive to obtaining more men and men of a better class than they at present have on their staffs. My own experience shows most distinctly that for male nurses of good character the work is unlimited, and that the demand far exceeds the available supply.

The remuneration of the male nurse is a varying quantity, and depends largely on the institution to which he attaches himself, and also, of course, on himself. In the case of a high-class and well-conducted institution, no man need earn less than £100 a year, in addition to his board, lodging, and travelling expenses while at work. Speaking from the nurse's point of view, were I applying for private work, I should be disinclined to join any institution levying an entrance fee; this is a gratuitous tax on a man's resources, since abundance of work may be obtained without, the demand for trained male nurses being, as I have said, in excess of the supply.

The personal factor is obviously of primary importance. A man with a good knowledge of his work, and an average allowance of common-sense and tact, will naturally be more popular and will be retained longer than one who by his lack of consideration for others renders himself more or less obnoxious.

The future.—As for the future of male nursing, judging from its rapid growth during the past ten years, there would seem to be no limit to the possibilities of its extension. Male nurses are fast becoming a necessity to the public, and, as the supporters of the hospitals, the public have some right to ask that the institutions which they so generously support should offer facilities for the more efficient training of such nurses. No radical change is necessarily involved in such an innovation; the admission of men to, say, a couple of wards in a large general hospital for purposes of training and nursing would mean a great step forward for the movement, while not appreciably displacing the female nurse.

Pioneers.—No account of male nursing would be complete without mention of the names of those who first made the movement possible, and have since contributed so much to its success. A tribute to these pioneers has already been paid by another contributor to these pages; but I cannot, for my own satisfaction, refrain from saying that it would be impossible to describe all that Miss Honnor Morten has done for male nursing. It was she who founded the Asylum Workers' Association, which has done so much for asylum nurses generally. Sir James Crichton-Browne was for many years its President, and his eloquence has always been at the service of the asylum nurse. To Dr. Shuttleworth also, as the Hon. Sec. of the Association, the male nurse owes a deep debt of gratitude. To Dr. Greene, late of Berry Wood, and to Dr. Robert Jones, of Claybury, we owe those practical reforms in asylum training to which is due the high standard that at present obtains. Dr. Greene was practically the pioneer of asylum nursing.

Many others there are without whose labours male nursing as a profession could never have attained its present position ; but enough has probably been said to indicate in a general way the contributory influences in a development of nursing such as was unthinkable to bygone generations, but which nowadays is recognised as one of the essential auxiliaries to medical practice.

BOOK II.—THE THEORY OF NURSING

CHAPTER XI

ELEMENTARY ANATOMY

By Russell Howard, M.S.(Lond.), F.R.C.S.

The Osseous System—The Articulations—Muscles and Fasciæ—The Circulatory System—The Lymphatic System—The Respiratory System—The Abdomen and Digestive System—The Urinary and Genital Systems—The Nervous System—Organs of Special Sense.

I.—THE OSSEOUS SYSTEM (Plates viii., ix.)

The entire human skeleton consists of 200 distinct bones. They are :—

Vertebral column or spine	26
Cranium or skull	8
Face	14
Hyoid bone, sternum, and ribs	26
Upper extremities	64
Lower extremities	62
	200

These bones are divided into four classes—long, short, flat, and irregular.

The **long bones** support the limbs and consist of a shaft and two extremities. The shaft is a hollow cylinder of bone, the central canal being known as the medullary cavity.

The extremities are usually expanded, and are made up of spongy bony material (cancellous tissue), with only a thin coating of compact bone. The long bones are all slightly curved, and examples of this class are the tibia (p. 185), the femur (p. 184), and the humerus (p. 182).

The **short bones** are made of spongy material, with a thin layer of compact bone on the surface. Examples are the bones of the wrist and foot.

The **flat bones** are intended for protection of underlying parts or to afford broad surfaces for muscular attachment. They are composed of two layers of compact bone enclosing between them a variable quantity of cancellous tissue. Examples of these bones are the parietal and frontal bones of the skull (p. 179), the scapula (p. 182), and the os innominatum (p. 183).

The **irregular bones** are such as cannot be grouped under any of the preceding headings. Examples are the vertebræ, the jaw bones, the palate bone, and the hyoid bone.

If a bone be examined, certain depressions and elevations are seen on it; these are of two classes—*articular* and *non-articular*. The articular markings are the places where the bone lies close to another bone and forms a joint, and in the fresh skeleton they are covered with cartilage. Non-articular markings are for the attachment of muscles and ligaments, and the more muscular the subject the deeper are the depressions. They are therefore more marked in men than in women.

If a long bone of a young subject be examined, it will be found that the extremities are separated from the shaft by a layer of cartilage. It is from these layers of cartilage that the growth of the bone in length takes place, and they are known as the epiphyseal lines. The shaft of the bone between the two epiphyseal lines is called the **diaphysis,** and the part beyond the epiphyseal line is known as the **epiphysis.**

The epiphyseal line is obviously a weak part of the bone, and in young subjects separation of an epiphysis is a fairly common accident.

In the adult, when the bones have finished growing in length, the epiphyseal cartilage becomes bony, and no trace of the epiphyseal line can be found. Besides the main epiphyses at the extremities of the bones, small extra epiphyses are common. The epiphyses are constant in position and number, and all the epiphyses of the body are joined to the diaphyses of the bones at the age of twenty-five.

Surrounding the bone, and really part of it, is a dense fibrous membrane, the **periosteum.**

The blood-vessels to the bone run in the periosteum, and when it is removed or inflamed the bone generally dies. New bone is deposited on the inner (bony) side of the periosteum to increase the bone in thickness, and this deposition can occur all through life.

If the bone necroses and dies, or a piece is removed, the periosteum,

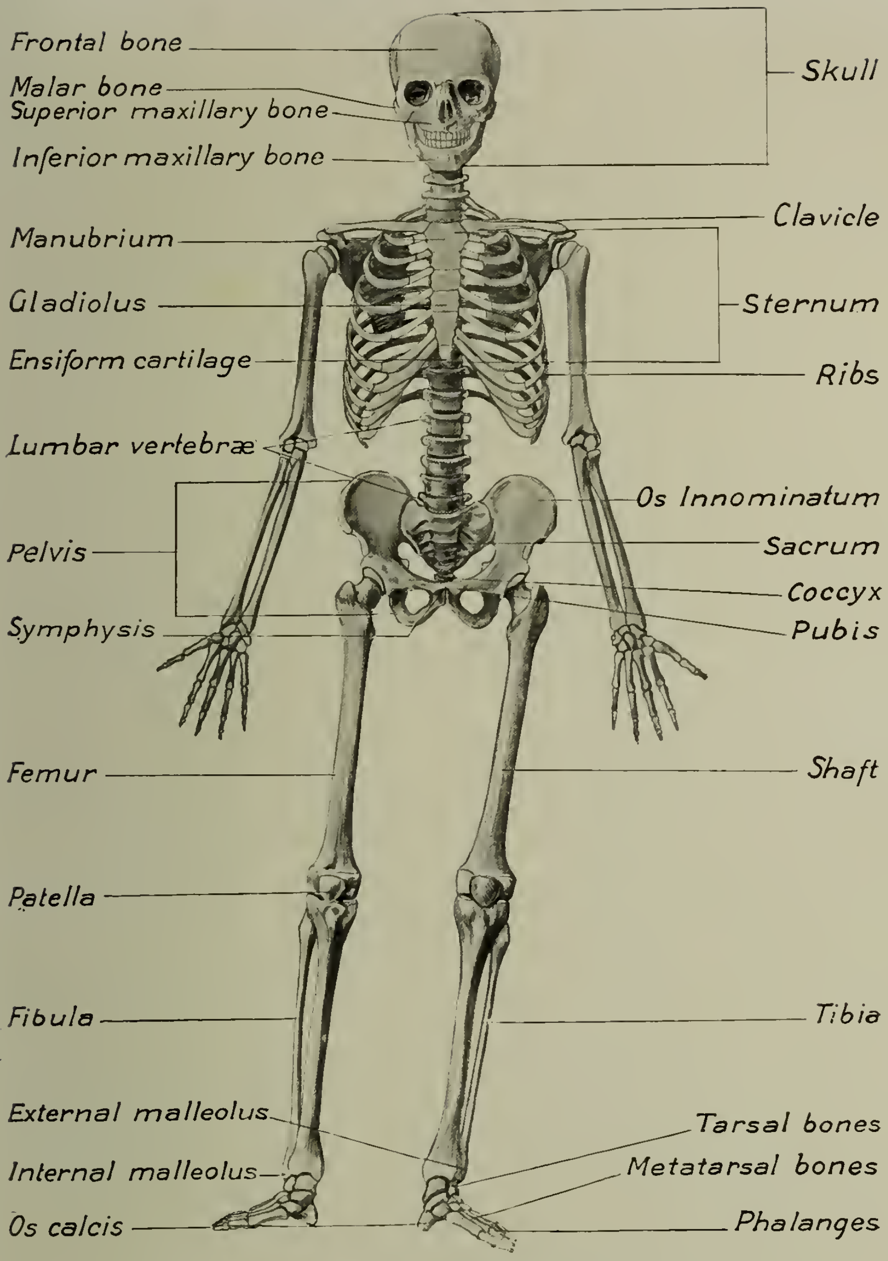


PLATE VIII.—THE HUMAN SKELETON, FRONT VIEW.

if left, can usually form a new bone, and it is from the periosteum that the new bone to repair a fracture grows.

In the central canal or medullary cavity of the long bones and in the cancellous tissue is found the **marrow.** In the adult long bones it chiefly consists of fat and is yellow in colour. In the flat and short bones and in young subjects it is red, and it is here that the new red blood-corpuscles are formed.

The bones, like all other tissues, are supplied with blood-vessels, nerves, and lymphatics.

THE SPINE (PLATE IX.)

The spine is a flexible column formed by a series of bony rings called the vertebræ. The **vertebræ** are 33 in number, and are divided into —cervical 7, dorsal 12, lumbar 5, sacral 5, and coccygeal 4.

The five sacral vertebræ are fused together to form the sacrum, and the four coccygeal to form the coccyx.

Each vertebra consists of two parts—an anterior or solid segment, the body ; and a posterior segment or arch.

The bodies of the vertebræ are piled one upon the other to form a strong pillar for the support of the body, whilst the round arches form a bony canal in which the spinal cord lies safe from injury.

The bodies of the vertebræ are connected together by strong plates of fibro-cartilage known as the **intervertebral discs** (Plate x.), whilst the arches articulate with one another by means of joints.

Between each pair of vertebræ are apertures (*intervertebral foramina*) through which the spinal nerves pass from the spinal cord.

Besides the articular processes, each arch has three other processes, a spinous process which projects posteriorly, and a transverse process on each side. These processes are for the attachment of the strong muscles that move the spine.

The **cervical vertebræ** (7) are smaller than those of the other parts of the spine, move very freely on one another, and have a large arch to accommodate the spinal cord. The first cervical vertebra is called the *atlas*, as it supports the skull, and nodding movements take place between this vertebra and the skull. The second is called the *axis*, as it allows the rotatory movements of the head.

The atlas has no body, but it articulates with a blunt toothlike process (*odontoid process*) which projects up from the body of the axis.

The *seventh cervical* vertebra is called the vertebra prominens, from the marked backward projection of the spinous process.

The **dorsal vertebræ** (12) are intermediate in size between the cervical and lumbar vertebræ, and have the ribs articulated to them. The head of the rib articulates with the sides of the bodies of two vertebræ and the transverse process of its own vertebra. Thus the 6th rib articulates with the body of the 6th and 7th vertebræ and the transverse process of the 6th vertebra. The exceptions are the 1st, 10th, 11th, and 12th ribs. The 1st and 10th ribs articulate with the body and transverse processes of their own vertebræ only, and the 11th and 12th articulate with the body of their own vertebra and do not articulate with the transverse processes.

The **lumbar vertebræ** (5) are the largest of the vertebræ, and have particularly large, strong bodies. The spinal canal is small, for the spinal cord does not extend below the body of the first lumbar vertebra.

The intervertebral discs between the bodies make up about one-third of the total length of the spine.

The **sacrum** is a large triangular bone which is inserted like a wedge between the two innominate bones. Its upper part or base articulates with the last lumbar vertebra, and its apex with the coccyx. Its anterior surface is concave and forms the hollow of the pelvis, and it really consists of the fused five sacral vertebræ. Posteriorly there is a canal in which the sacral nerves lie, and between each pair of vertebræ are holes for the exit of the nerves. The sacrum of the female is shorter and wider than that of the male.

The **coccyx**—so called because it is supposed to resemble a cuckoo's beak—is formed of four rudimentary vertebræ, and is about one inch long. It is the remains of the tail of the lower animals. It can be removed without disadvantage resulting.

When looked at from the side, the spinal column presents four curves, called from their positions the **cervical, dorsal, lumbar,** and **pelvic curves.**

The cervical curve is convex forwards. The dorsal curve is concave forwards, and in it lie the heart, lungs, and great vessels of the thorax.

The lumbar curve is convex forwards, and the pelvic curve concave, to form the cavity of the pelvis. There is also a slight curve to the right in the right-handed, and to the left in the left-handed.

The spinal canal follows the different curves of the spine.

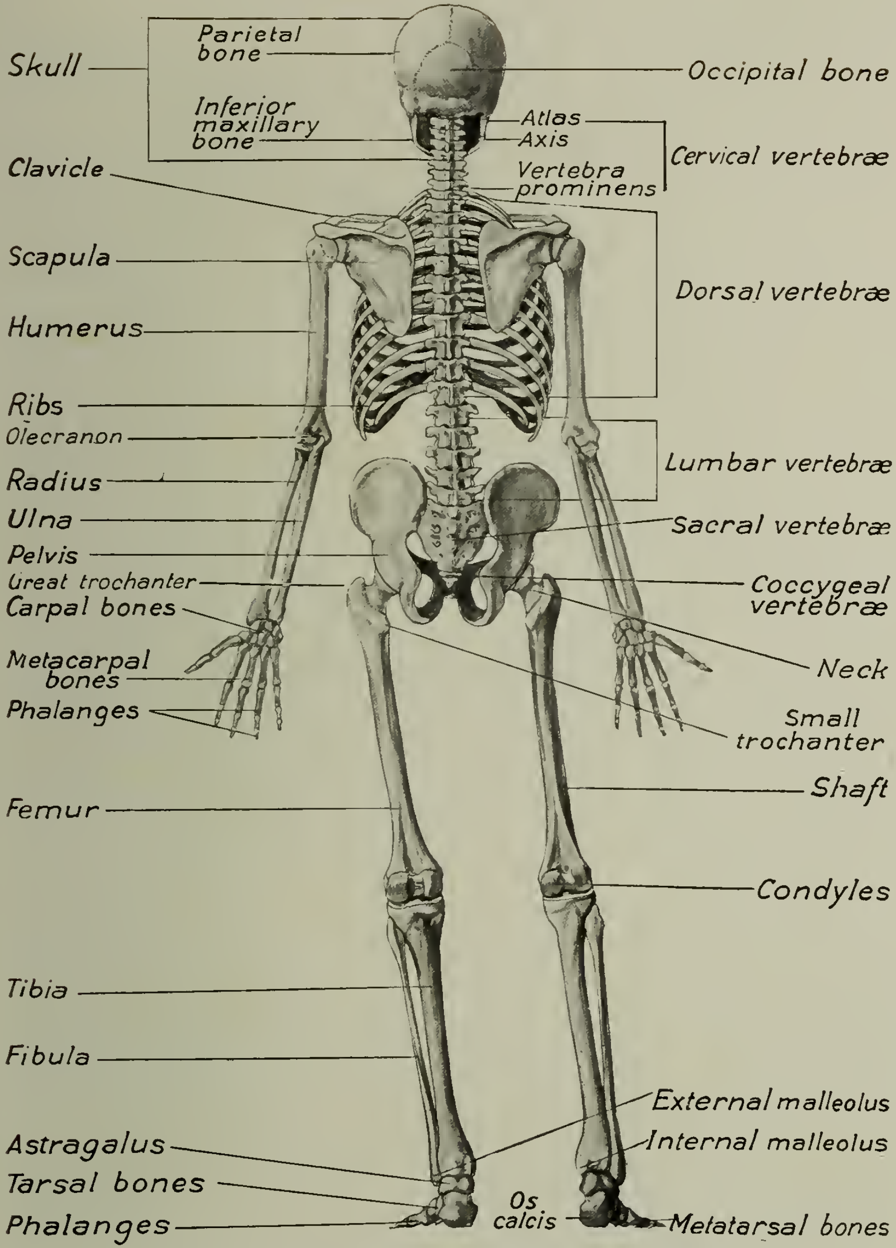


PLATE IX.—THE HUMAN SKELETON, BACK VIEW.

THE CRANIUM

The cranium (Fig. 1) is formed by the following bones:—

Occipital	Two temporal
Two parietal	Sphenoid
Frontal	Ethmoid

The **occipital** is a flat bone which forms the posterior part of the cranial vault. In it is the foramen magnum, or great hole, by which the cranial cavity communicates with the spinal canal. It articulates with the atlas, and nodding movements take place between the two bones.

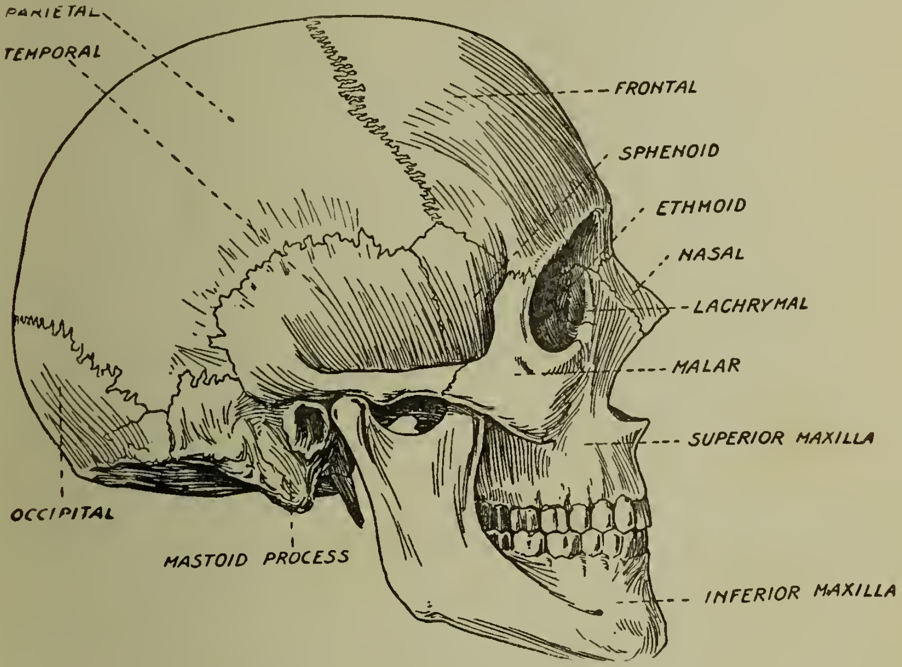


Fig. 1.—Bones of the Skull and Face.

The two **parietal bones** form by their union the side and roof of the skull; they articulate in front with the frontal bone, and behind with the occipital.

On the inner side of the bone runs an artery, the middle meningeal, which is frequently lacerated in cases of fractured skull.

The **frontal bone** forms the front wall of the skull and the upper wall of the orbits. It articulates posteriorly with the parietal bones. In it are two air-containing cavities, the frontal sinuses, which communicate with the nose.

The **temporal bones** are situated at the sides and base of the skull, and contain the organs of hearing and equilibration. Each bone is divided into three parts, a squamous portion, a mastoid portion, and a petrous portion. In the mastoid portion is a small cavity, the mastoid antrum, which communicates with the middle ear, and which is frequently inflamed as a complication of otitis media. The internal and middle ear are situated in the petrous portion of the bone.

The **sphenoid bone** lies at the base of the skull, and articulates with all the other cranial bones and binds them firmly together. In the body of the bone is an air sinus which communicates with the nose, the sphenoidal sinus.

The **ethmoid** (a sieve) is a spongy bone forming part of the nasal cavity, the base of the skull, and the orbit. It contains three air sinuses, all opening into the nose; the turbinate bones (p. 181) are attached to it.

The fontanelles are spaces between the skull bones of infants, which are filled in with membrane. The largest is the anterior fontanelle, between the two parietal bones and the frontal; it does not close till the second year of life, and in rickety children remains open still longer.

BONES OF THE FACE

The facial bones (Plates VIII., IX., Figs. 1, 5) are fourteen in number:

Two nasal bones
Two superior maxillary bones
Two lachrymal bones
Two malar bones
Two palate bones
Two inferior turbinate bones
Vomer
Inferior maxillary

The **nasal bones** form the bridge of the nose. They meet together in the middle line.

The **superior maxillary bones** form the front of the face, the lower margin of the orbit, the hard palate, and part of the lateral wall of the nose. They support the upper row of teeth. In each bone is a large air sinus, the antrum of Highmore, the opening of which is into the middle compartment of the nose. Excision of the upper jaw is the removal of this bone.

The **lachrymal bones** are small and form part of the orbit.

The **malar bones** (*mala*, the cheek) form the prominences of the cheeks and part of the wall of the orbit.

The **palate bones** help to form the hard palate, the nasal cavities, and the orbits.

The **inferior turbinate bones** are the spongy bones of the nose (p. 180).

The **vomer** (a ploughshare) takes its name from its shape. It forms part of the nasal septum.

The **inferior maxillary bone** forms the lower jaw and carries the lower teeth. It is sometimes called the mandible. It articulates with the temporal bones to form the temporo-maxillary joints, which allow backwards-and-forwards, side-to-side, and up-and-down movements, so that the food can be thoroughly masticated. In the infant there are two bones, joined at the chin by cartilage, the cartilage ossifying as the child grows.

The **orbits** are the two cavities in which the eyeballs are situated. In their walls are parts of most of the bones of the face.

The **hyoid bone** is sometimes called the lingual bone, as it supports the tongue and gives attachment to its muscles. It is somewhat like a horse-shoe in shape, and is situated in the middle line of the neck above the larynx.

THE THORAX

The **thorax** is an osseo-cartilaginous cage which contains and protects the heart and lungs. It is bounded by the twelve dorsal vertebræ behind, by the sternum in front, and by the ribs at the sides. Below, the diaphragm separates it from the abdomen; and above, the apices of the lungs project into the neck. Between the ribs are spaces called the intercostal spaces, which in life are closed in by the intercostal muscles.

The **sternum** (Plate VIII.) is a flat, narrow bone forming the front of the chest and having the seven true ribs attached to it by their cartilages. It consists of three pieces, called the manubrium, the gladiolus, and the ensiform cartilage. Projection of this bone forwards gives the deformity known as "pigeon breast." The clavicles articulate with the manubrium.

The **ribs** are twelve in number on each side. They are divided into seven true ribs and five false ones, the eleventh and twelfth also being termed "floating ribs." The seven true ribs articulate with the vertebræ behind (p. 178), and by their costal cartilages with the sternum in front.

The costal cartilages are stout pieces of cartilage fixed to the anterior ends of the ribs.

The upper three false ribs articulate behind with the vertebræ, and in front with the costal cartilages of the other ribs. The two lower false or floating ribs articulate behind with the vertebræ, whilst the anterior extremities are free. The ribs increase in size from the first to the seventh, and then diminish again to the twelfth. They are curved to form the bony outline of the chest. The ribs in children are very elastic, but they become firmer in old age by ossification of the costal cartilages.

THE UPPER EXTREMITY (PLATES VIII., IX.)

The shoulder girdle is placed upon the upper part and side of the chest, and consists of two bones, the clavicle and the scapula.

The **clavicle** (collar bone) is a long bone with a double curve which connects the upper extremity to the chest. It articulates with the manubrium of the sternum at the inner end, and with the scapula at the outer end. It is frequently broken by falls on the hand or elbow.

The **scapula** (blade bone) forms the back part of the shoulder, and is a flat, triangular bone situated at the posterior aspect and side of the thorax. Into a cavity (the glenoid) at its outer angle the humerus articulates, and it has a prominent spine at the back, ending in a blunt process, the acromion process, which forms the tip of the shoulder and articulates with the outer end of the clavicle. Many important muscles moving the arm are attached to it.

The **humerus** is the longest and largest bone in the upper extremity. It has a shaft and two extremities. The upper extremity consists of the head, which articulates with the glenoid cavity of the scapula, and the greater and smaller tuberosities, to which muscles are attached.

The shaft is long and cylindrical.

Its lower extremity has two articular facets, one for the ulna and one for the radius, and two condyles, an internal and an external, for the attachment of muscles.

The upper extremity of the **ulna** forms the great sigmoid cavity, which articulates with the humerus, and it also has an articular facet for the radius. The ulna forms the point of the elbow by a process of bone known as the **olecranon**.

The lower extremity of the ulna also articulates with the radius. It is the larger of the two bones of the forearm.

The **radius**, which with the ulna forms the forearm, has a head, which articulates both with the humerus and the ulna, and a lower extremity, which articulates with the ulna and the wrist bones. Between the two articular surfaces the bones of the forearm run parallel to each other, and are separated by a gap which is filled in during life by a stout membrane.

By means of its articulations the radius can turn on the ulna so that the palm of the hand can be held up or down. These movements are called respectively supination and pronation.

The bones of the wrist are small, and are known as the **carpal** bones. They are arranged in two rows, each row containing four bones. The first row articulates with the radius to form the wrist-joint proper, whilst the second row articulates with the bones of the metacarpus which form the palm of the hand. The two rows also articulate with one another.

The bones of the hand are called the **metacarpals**, and are five in number, that for the thumb being more freely movable than the others. They are long bones, and their bases join the carpal bones, whilst their heads articulate with the phalanges.

The bones of the fingers are termed the **phalanges**, and there are three for each finger and two for the thumb. The terminal bone of each digit is called the ungual phalanx, as it supports the nail. The phalanges of each digit are articulated with one another.

THE PELVIS

The pelvis (Fig. 2) connects the lower extremity to the trunk, and is formed by four bones—the os innominatum on each side and in front, and the sacrum and coccyx connecting them behind. The cavity formed by these bones is known as the pelvis, and contains the rectum and bladder, and in the female the organs of generation. The pelvis articulates by means of the sacrum with the spine through the last lumbar vertebra and with the lower extremities. The female pelvis is relatively larger than the male. The space included by the upper margin or brim of the pelvis is known as the inlet, and the lower circumference as the outlet, of the pelvis.

The **os innominatum** consists of an expanded portion, the *ilium* (flank), a strong lower part for sitting on, called the *ischium* (hip), and a portion which joins the bones of the opposite side in front, the *pubis*.

The joining place of the two pubic bones is known as the symphysis, and the bone itself has received its name from the skin over it being covered with hair.

The three bones are fused together in the adult, forming a single bone. At the meeting-point of the three bones is a deep cup-shaped hollow, the **acetabulum,** which receives the head of the femur. Below the acetabulum is a large opening in the bone, the obturator or thyroid foramen.

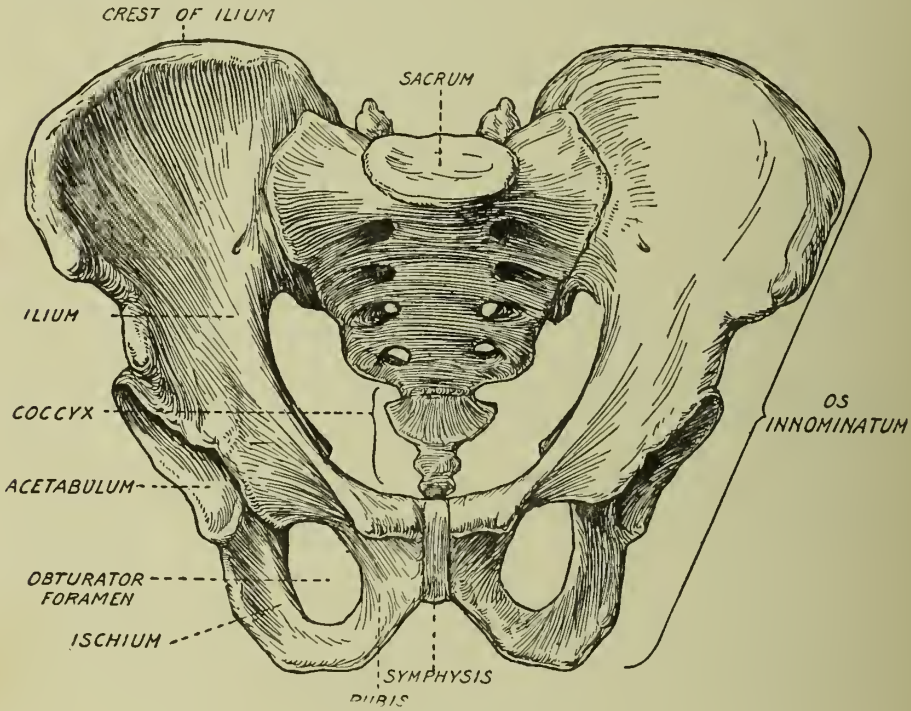


Fig. 2.—The Pelvis.

THE LOWER EXTREMITY (PLATES VIII., IX.)

The bones of the lower extremity are the femur, patella, tibia, fibula, tarsal bones, metatarsal bones, and phalanges.

The **femur** (thigh bone) is the largest, longest, and strongest bone in the body, and consists of a head, neck, two trochanters, a shaft, and a lower extremity.

The *head* is smooth and rounded, and articulates with the acetabulum of the os innominatum to form a ball-and-socket joint.

The *neck* joins the head and the shaft. The two *trochanters* are well-marked bony prominences for the attachment of muscles.

The *shaft* is cylindrical and slightly curved forwards. The femora gradually approach one another as they near the knee. The lower extremity has two condyles which articulate with the patella and tibia to form the knee joint. The inner condyle is the longer and more prominent of the two.

The **patella** (knee cap) is a flat rounded bone situated at the anterior part of the knee joint. Above, the great muscles of the front of the thigh are inserted into it; their contraction is sometimes sufficient to break the bone. It is attached to the tibia by a strong ligament, the *ligamentum patellæ*.

The **tibia** is the stronger and larger of the two bones of the leg. Its upper extremity presents two tuberosities for articulation with the condyles of the femur. The shaft has a prominent subcutaneous anterior border, the shin, and its lower extremity forms a prominence on the inner side of the ankle joint, the internal malleolus. Articulating with it above and below is the fibula.

The **fibula**, the smaller of the two bones of the leg, is situated on the outer side of the tibia, with which it articulates above and below. Its lower extremity projects strongly on the outer side of the ankle joint, forming the external malleolus. There is practically no movement between the tibia and the fibula.

The skeleton of the foot consists of three divisions; the tarsus, metatarsus, and phalanges.

The **tarsal bones** are seven in number, the most important being the *os calcis* or *calcaneum*, which forms the prominence of the heel, and the *astragalus*, which articulates with the lower ends of the tibia and fibula to form the ankle joint. In front the tarsus articulates with the metatarsus.

The **metatarsal bones** are five in number, and are longer and stronger than the metacarpal bones. When they are articulated with the tarsus the bones form a well-marked arch, springing from the heel behind and ending at the heads of the metatarsals in front.

The **phalanges** resemble those of the hand, but are shorter. Each digit has three phalanges, except the great toe, which has only two, and the terminal ones carry the nails.

II.—THE ARTICULATIONS (PLATE X.)

The various bones of the body are connected together at different parts of their surfaces, and such a connection is called an articulation or joint.

Some joints, such as those between the skull bones, are immovable; whilst others, such as the shoulder joint, allow very free movement of the bones.

The surface of the bone (articular surface) that enters into the formation of the joint is covered with **cartilage** (articular cartilage), and the bones are held together by strong bands or capsules of fibrous tissue called **ligaments.**

The inner aspect of the ligaments is covered with a smooth lining membrane, the **synovial membrane.** This secretes a glairy fluid, synovia, like the white of egg, which lubricates the various parts of which the joint is formed so that friction on movement is reduced to a minimum.

In those joints in which movement is not very free the bones are connected together by a strong piece of cartilage, **fibro-cartilage,** such as is found between the bodies of the vertebræ (p. 177).

A movable joint is thus formed of bones, articular cartilage, fibro-cartilage, ligaments, and synovial membrane.

In many joints, pouches of synovial membrane are found under or over the tendons of the various muscles that move the joint, so that friction is avoided. These pouches are called **bursæ.**

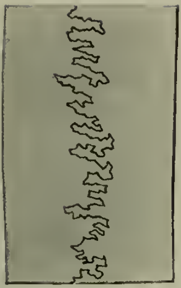
Joints are supplied with blood-vessels and nerves, and are moved by the surrounding muscles.

When the two bones forming a joint are separated from one another the joint is said to be dislocated.

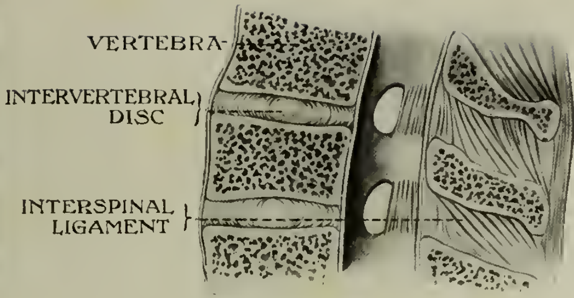
The **temporo-maxillary joint** is the articulation of the lower jaw with the temporal bones on each side of the head. The movements permitted are to and fro, up and down, and side to side, so that the food can be thoroughly masticated. Dislocation of this joint may occur from yawning, etc.

The **sterno-clavicular joint** is the articulation of the clavicle and the sternum. The upper extremity is joined to the trunk by means of this articulation.

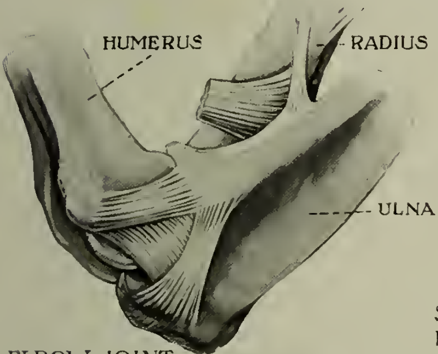
The **acromio-clavicular joint** is the articulation of the outer end



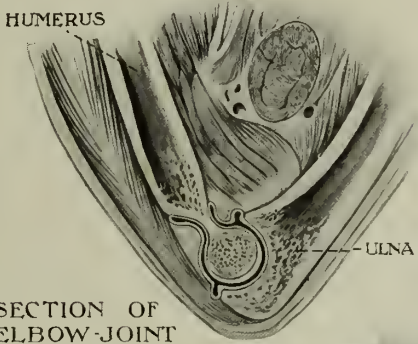
SUTURE OF SKULL



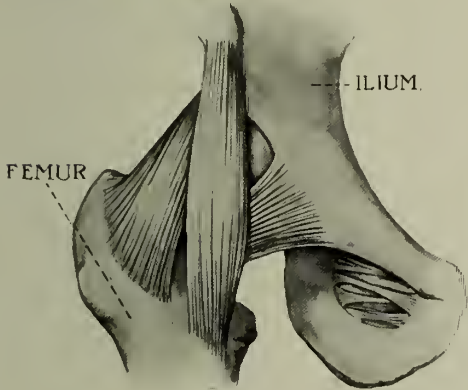
SECTION OF SPINE



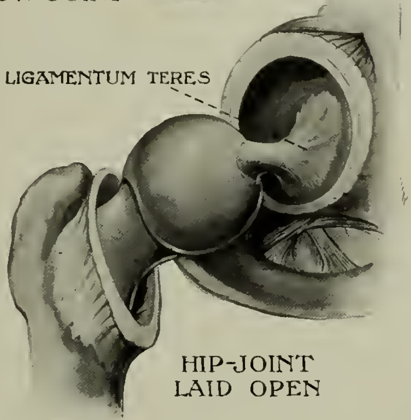
ELBOW-JOINT



SECTION OF ELBOW-JOINT



HIP-JOINT



HIP-JOINT LAID OPEN

PLATE X.—JOINTS AND LIGAMENTS.

of the clavicle with the acromion process of the scapula. Very little movement is permitted at this joint.

The **shoulder joint** is the articulation between the glenoid cavity of the scapula and the head of the humerus. It is a ball-and-socket joint, and the movements are very free in all directions. This joint is frequently dislocated.

The **elbow** (Plate x.): Two joints are found at the elbow, but they have a common synovial membrane. They are—the joint between the radius and ulna and the humerus, which permits flexion and extension of the forearm, and the joint between the radius and ulna, which permits the radius to rotate round the ulna. A joint at the lower end of the radius and the ulna allows this movement.

Wrist joint: There are six separate joints at the wrist which permit the free, complicated movements that take place there, and the radius, the ulna, the carpal and metacarpal bones, all take part in their formation. The phalanges of each digit articulate with one another and with the corresponding metacarpal bone.

Pelvis: The bones of the pelvis are joined by articulations which allow of very little movement. They are the *sacro-iliac* joints between the sacrum and the ilium, and the *symphysis pubis* between the two pubic bones. These movements become more free towards the end of pregnancy, so that the joints have more movement during parturition.

The **hip** (Plate x.) is a ball-and-socket joint between the acetabulum of the os innominatum and the head of the femur. It is exceedingly strong, its ligament being amongst the strongest in the body. Movements are free in all directions, and dislocation of the hip is not a common accident.

The **knee** (Fig. 3): Three bones enter into the articulation of the knee, which is a very complicated joint; they are the condyles of the femur, the head of the tibia, and the patella. The bones are joined by numerous ligaments, and there are two fibro-cartilages in the joint. The mechanism of the joint is frequently deranged, with consequent weakness and lameness.

The movements permitted are flexion and extension, with a very little rotation. Numerous bursæ are found in connection with the joint, of which the most important one is that in front of the patella between it and the shin. Inflammation of this bursa is known as "housemaid's knee."

The tibia and fibula are articulated together by joints above and below which permit very little movement.

The **ankle** : This joint is formed by the fitting in of the astragalus, a bone of the tarsus, between the internal malleolus of the tibia and the external malleolus of the fibula. So deeply is the astragalus let in between these bony projections that dislocation uncomplicated by fracture is very rare. A common fracture dislocation, however, occurs, which is known as Pott's fracture. This joint only allows of flexion and extension, and is a good example of a hinge joint. The other movements of the foot take place chiefly at what is known as the mid-tarsal joint. This is a joint between the astragalus and os calcis behind, and the scaphoid and cuboid in front, and is placed at the summit of the arch of the foot.

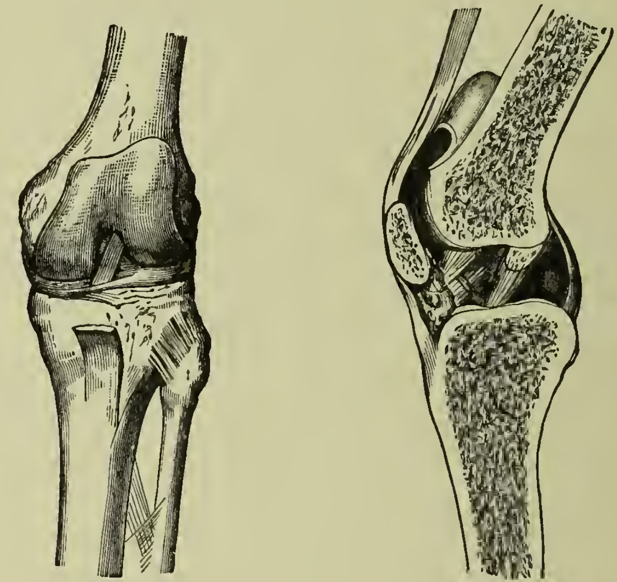


Fig. 3.—Knee Joint, and Section of same showing Synovial Cavity.

The other bones of the tarsus and metatarsus also move on one another ; and, as in the hand, there are six separate joints in the foot.

The articulations of the phalanges to one another and to the metatarsal bones are similar to the corresponding joints in the hand.

The articulation of the vertebræ with one another and of the ribs with the spinal column and sternum has already been sufficiently described (p. 178). The costo-vertebral (ribs and vertebræ) articulations permit the movements of respiration.

The bones of the skull are connected by a series of processes and indentations interlocked together. The surfaces of the bones are not in direct contact, being separated by a layer of membrane which is continuous internally with the dura mater (p. 222). These articulations are termed *sutures* (Plate x.). The sutures are particularly apparent in the skulls of children, in whom large gaps are left between the bones. The gaps are called the fontanelles (p. 180). The sutures tend to disappear with advancing years.

III.—MUSCLES AND FASCIÆ (PLATES XI., XII.)

The muscles of the body are divided into two classes, voluntary and involuntary.

The **voluntary** muscles are under the control of the will, and are the means by which the various joints are moved. They are connected with bones, cartilages, ligaments, and skin, either directly or through the intervention of fibrous structures called tendons and aponeuroses.

Involuntary muscles are not under the control of the will, and are found in the blood-vessels and alimentary canal, the uterus, and other organs.

They are chiefly supplied by nerves from the sympathetic system.

There are 224* named muscles in the body, divided into :—

Cranium and face	35
Neck	32
Larynx	7
Back	34
Abdomen	7
Thorax	5
Perineum	7
Upper extremity	46
Lower extremity	51
	224

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* It must not be forgotten that the great majority of muscles are paired, one being on each side of the body. In some cases, too, several muscles receive the same name. Thus, there are seven interosseous muscles in the hand, and eleven pairs of external intercostal muscles in the thorax.

Muscles vary considerably in size and form, some being less than an inch long, whilst others are from one to two feet long and correspondingly thick. They are the "flesh" of meat. They are supplied with nerves and blood-vessels, the principal nerves being called motor nerves, as impulses sent down them cause the muscles to contract and so move the joints.

Tendons are white glistening fibrous cords, varying in length and thickness, which connect the muscles to the various structures from which they arise or into which they are inserted. They consist principally of a substance that yields gelatine. In some parts of the body, especially in the hands and feet, the tendons run in special sheaths known as tendon sheaths. These sheaths and the tendons in them are lined with a synovial membrane similar to that found in joints, so that the tendon can glide freely in its sheath without friction.

Aponeuroses are flattened or ribbon-shaped tendons of a pearly-white colour, in which muscle fibres end.

The **fasciæ** are composed of connective tissue, and are found in all the regions of the body investing the delicate organs and muscles. They may be divided into two great groups, the superficial and the deep.

The *superficial fascia* is found immediately beneath the skin all over the body, and contains in its meshes fat in varying quantities. It varies in thickness in different parts of the body, being abundant in the trunk, and almost entirely absent in the palms of the hands and soles of the feet. It connects the skin to the subjacent parts, and retains the body-warmth, fat being a bad conductor of heat.

The *deep fascia* is a dense fibrous membrane forming sheaths for the muscles. It varies in thickness in different parts of the body, and muscles arise from and are inserted into it.

The following are some of the important muscles :—

Of the upper extremity.—*Biceps of the arm.*—This is the large muscle of the front of the upper arm which flexes the forearm. It arises from the scapula and is inserted into the radius.

Triceps.—This muscle is placed on the back of the upper arm and extends the elbow. Arising from the scapula, it is inserted into the olecranon process of the ulna. A violent contraction of the muscle will sometimes break the olecranon.

The flexor muscles of the wrist and fingers are a large group of muscles on the front of the forearm, whose contraction flexes the wrist

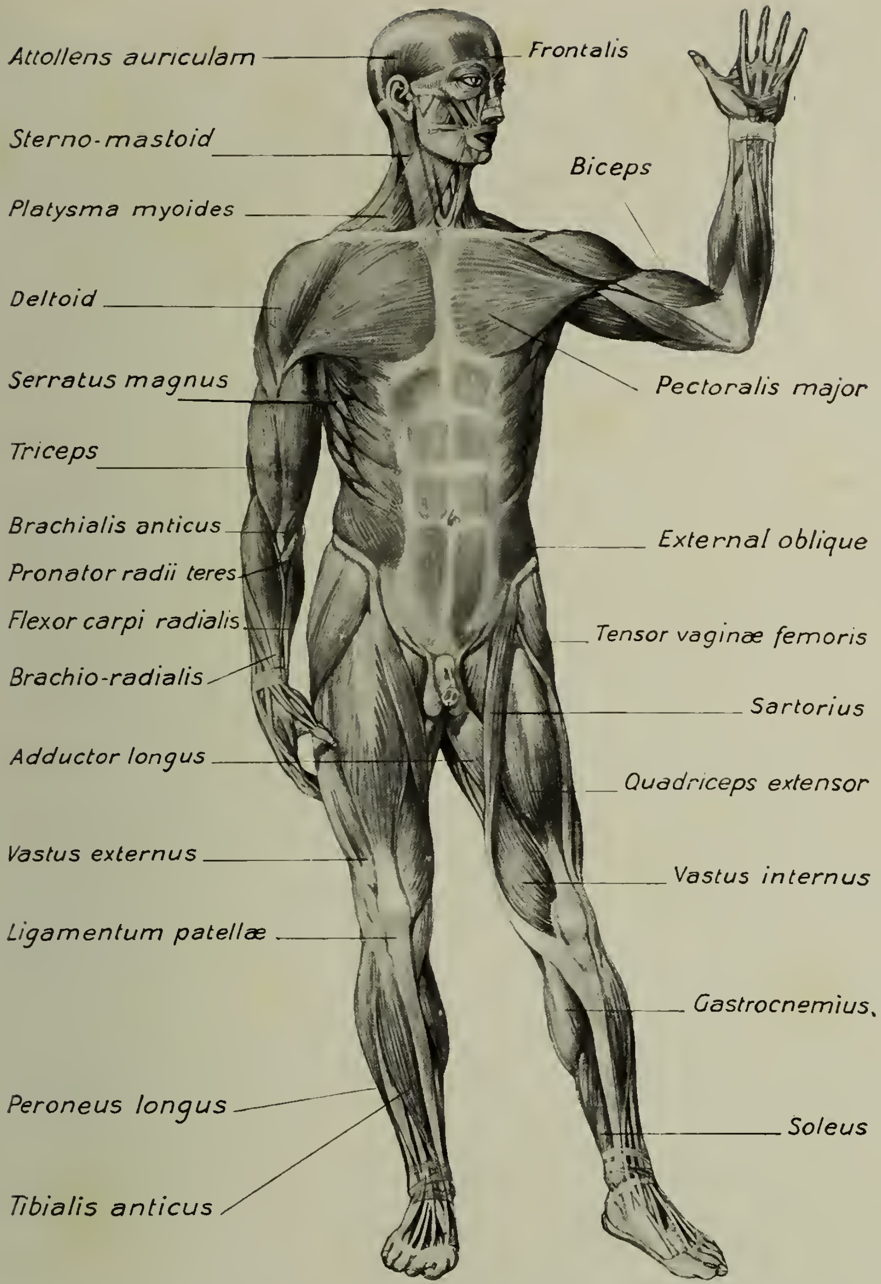

PLATE XI.—MUSCLES OF THE HUMAN BODY. FRONT VIEW.

and clasps the fingers. Opposing them and lying on the back of the forearm bone is the extensor group of muscles which extends the wrist and fingers. These last muscles are all supplied by one nerve, the musculo-spiral. When this nerve is injured the muscles are paralysed and the wrist and fingers cannot be extended, a condition known as "wrist-drop."

The thumb is moved by six small muscles which form the eminence known as the ball of the thumb, and on the opposite side of the palm of the hand are the three small muscles of the little finger. Most of the muscles of the palm are supplied by the ulnar nerve, injury of which is followed by paralysis and wasting of the muscles.

Of the thorax.—Two large muscles cover the front of the chest, the *pectoralis major* and *pectoralis minor.* They are frequently removed in the operation for cancer of the breast. These muscles are inserted into the upper extremity near the shoulder.

Between the ribs is a series of muscles, the *intercostals*, which are of importance in the movements of respiration.

Of the spine.—Extending the whole length of the spinal column and inserted into its numerous processes is a large mass of muscular tissue, called the *erector spinæ.* As its name implies, it helps to maintain the erect position of the body, besides moving the various parts of the spine on one another. Inflammation of the lumbar part of the muscle is known as lumbago. The cervical portion of the muscle helps to move the head on the spinal column.

Of the abdomen.—The wall of the abdomen is chiefly made up of flat muscles which are arranged in three layers, the *external oblique*, the *internal oblique*, and the *transversalis.* These names are given from their position and the direction of their fibres.

A broad flat muscle runs the whole length of the front of the abdomen on each side of the middle line. It is attached to the ribs above and the pubic bone below, and is known as the *rectus abdominis.*

If the abdominal muscles are weak, protrusion of the belly wall occurs. This is especially common in women after repeated pregnancies, and necessitates the wearing of an abdominal belt.

Of the lower extremity.—On the front of the thigh is the extensor muscle of the lower leg. It is made up of four muscles and receives the name of the *quadriceps extensor.* It is partly inserted into the patella, and if it contracts quickly and powerfully—and it sometimes does when a person tries to save himself from falling—it may tear the patella in halves.

The flexor muscles lie behind the femur and are known as the *hamstrings*. Their tendons may be felt behind the knee, and they are inserted into the tibia and fibula.

The muscles of the buttock are the *glutei*, the largest being the *gluteus maximus*. This muscle extends the trunk on the lower extremity.

In front of the lower leg are the extensor muscles of the ankle and toes, paralysis of which causes foot-drop or talipes equinus. They are all supplied by the anterior tibial nerve.

The calf muscles flex the ankle and toes, and are the muscles used in walking and running. The large calf muscles are inserted into the heel (os calcis) by a thick, strong tendon called the *tendo Achillis*. This tendon is frequently divided (tenotomy) in cases of deformity of the foot.

The muscles of the sole of the foot are very similar to those of the palm of the hand.

Of the face.—The muscles of the face are inserted into the skin of the face, and by their contraction cause the various facial expressions. They are all supplied by the seventh cranial nerve, paralysis of which causes the side of the face to become immobile.

Of the neck.—Numerous muscles move the neck and the head. One of the most readily recognised of these is the *sterno-mastoid*, which is seen on either side of the neck, and is attached to the skull and to the sternum. Shortening of this muscle on one side produces the condition spoken of as wry neck (*torticollis*).

IV.—THE CIRCULATORY SYSTEM (PLATES XIII.—XVI.)

The circulatory system comprises the heart, the arteries, and the veins.

THE HEART

The heart (Plate XIII.) is a hollow muscular organ situated in the thorax between the two pleural cavities. Into it empty the large veins of the body, and from it the aorta springs, and by its contraction it drives the blood onward through the arteries. Each contraction of the heart is felt in the arteries as the pulse. The heart consists of four chambers, two of which are thin-walled—the right and left auricles

—and two thick-walled—the right and left ventricles. The contraction of the auricles merely has to drive the blood from the auricle to the ventricle through a wide opening, so that not much muscular effort is required, and the walls are thin; whilst the contraction of the ventricles has to drive the blood through a long system of narrow arteries, and considerable muscular strength is required.

Pericardium.—Like all other organs which move freely, the heart is surrounded by a smooth-lined sac so as to diminish friction. This sac, termed the pericardium, is a fibro-serous membrane containing the heart and the commencement of the great vessels. It consists of two parts, a thick fibrous sac which encloses the heart, and a thin smooth layer which lines the fibrous sac and is reflected at the great vessels over the heart itself. A cavity is thus formed, the pericardial cavity, which in health is entirely filled by the heart except for a small quantity of serum just sufficient to moisten the lining membrane. Fluid can collect in this pericardial cavity by compressing the heart and dilating the fibrous sac of the pericardium.

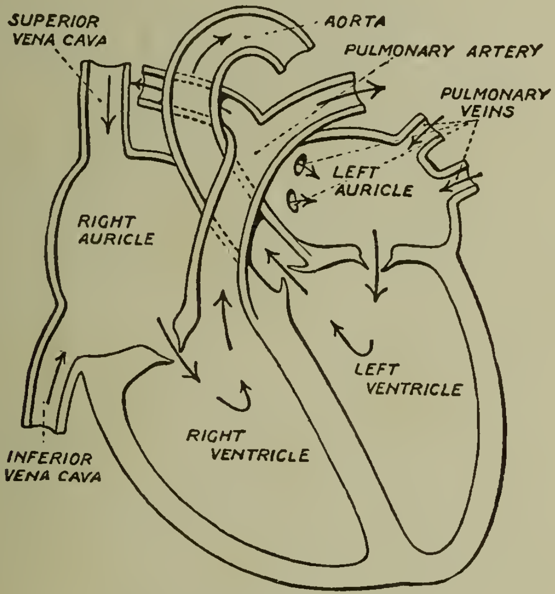

Fig. 4.—Chambers of the Heart.

The heart is irregularly conical in shape, and is attached at the base to the great vessels, being otherwise free in the pericardial sac.

It is placed obliquely in the thorax, the base being directed upwards, backwards, and to the right, and the apex downwards, forwards, and to the left. The apex of the heart corresponds to a point ¾ inch to the right and 1½ inches below the left nipple in the fifth intercostal space.

Chambers of the heart.—1. The *right auricle* consists of a principal cavity or vestibule and the auricular appendix. The auricular appendix is a small muscular pouch, shaped something like a dog's ear, projecting from the anterior and upper edge of the auricle.

Into the vestibule open the following veins: (*a*) The *superior vena cava*, the great vein which returns all the blood from the head, neck, upper extremities, and thorax to the heart; (*b*) the *inferior vena cava*, the great vein which returns all the blood from the abdomen, the pelvis, and the lower extremities; (*c*) the *coronary sinus*, which returns the blood from the heart muscle itself; (*d*) small openings of veins of the auricle. None of these openings, with the exception of the coronary sinus, have valves. The valve guarding the coronary sinus is known as the valve of Thebesius.

The right auricle therefore receives all the blood from the systemic circulation (p. 195), which has passed through the various parts of the body, and has been partly deprived of its oxygen and has received an excess of carbonic acid gas. This is known as venous blood.

At the lowest part of the right auricle is an opening, the auriculo-ventricular, through which the blood passes into the right ventricle.

This opening is guarded by the tricuspid valve.

2. The *right ventricle* has thicker walls than the right auricle, and has bundles of muscular fibres projecting into its cavity. The tricuspid valve, which prevents regurgitation of blood into the right auricle while the ventricle contracts, consists of three thin flaps or cusps projecting from the wall of the heart just where the auricle joins the ventricle. Thin cords (chordæ tendineæ) are attached to the edges of the cusps and run down to be fastened to small muscular projections (musculi papillares) on the inner wall of the ventricle. These cords prevent the cusps from being forced into the auricle by the stream of blood when the ventricle contracts.

Opening out of the upper part of the right ventricle is the *pulmonary artery*, and it is into this vessel that the blood is driven when the ventricle

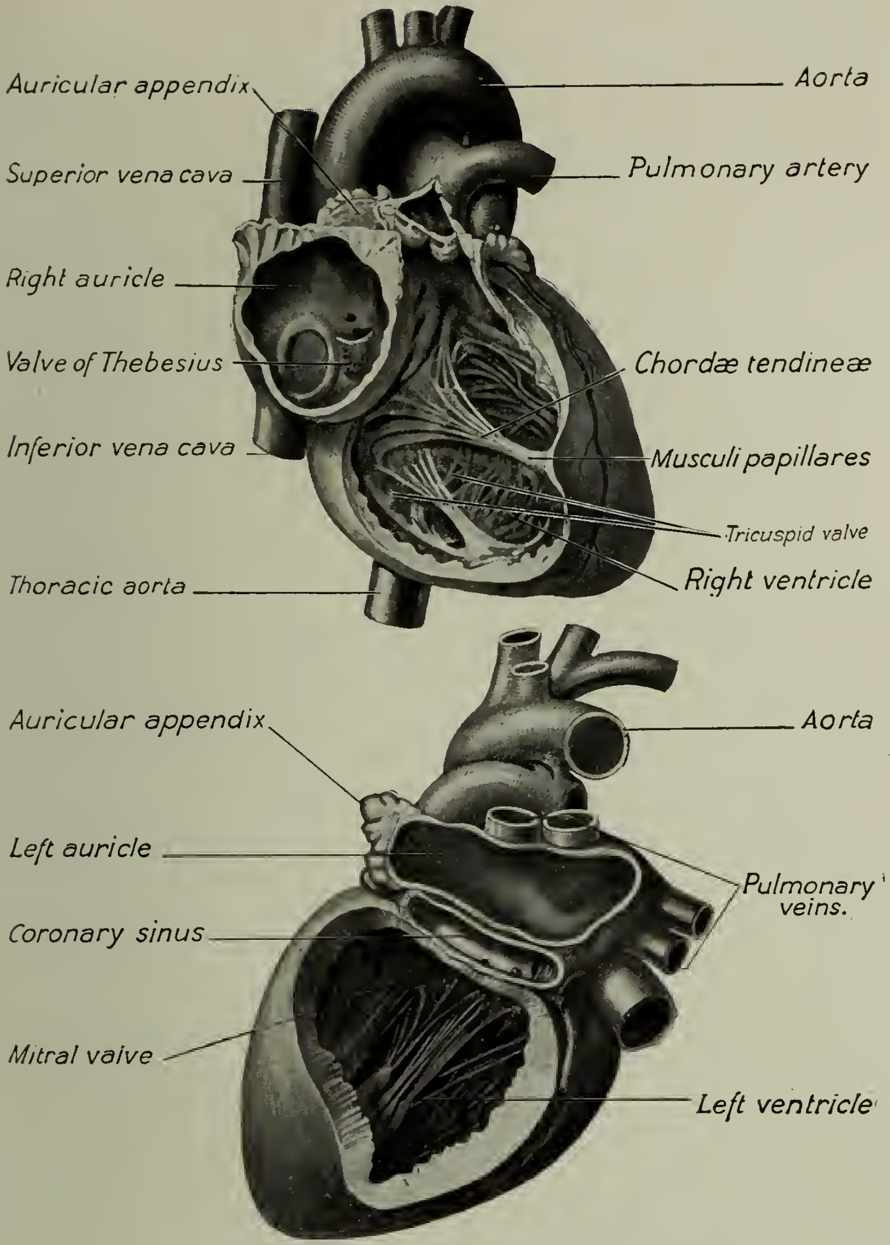

PLATE XIII.—THE HEART.

contracts (systole). The entrance to the pulmonary artery is guarded by three little semilunar valves which project from the walls of the vessel. These valves are open during systole, but after the contraction is over (diastole) they close down and prevent the blood from flowing back into the ventricle.

The blood, which is venous in character, flows into the pulmonary artery, which immediately divides into two branches, one for each lung. The branches divide in the lungs into smaller branches, and this continues till the arteries become exceedingly small and the walls very thin. The blood is thus brought into close relationship with the air in the lungs, and gives up its carbonic acid gas and receives oxygen from the air, and thus becomes arterialised. This arterial blood gradually collects into larger and larger vessels which ultimately form the four pulmonary veins, two from each lung, and these run back to the heart and enter the left auricle. This flow of blood to and from the lungs is known as the *pulmonary circulation*, as distinct from the *systemic* or *general circulation*.

3. The *left auricle*, like the right, consists of two parts, a cavity which receives the four pulmonary veins, two opening on each side, and an auricular appendix. At its lower part is the left auriculo-ventricular opening, through which the blood flows to enter the left ventricle. This opening is guarded by the mitral valve, so called from its supposed resemblance to a bishop's mitre. The mitral valve has two cusps, and has the same construction as the tricuspid, but is the stronger of the two. It is open when the blood is flowing from the auricle into the ventricle, but during the ventricular systole it closes to prevent regurgitation of the blood into the auricle.

4. The *left ventricle* is longer and more conical than the right, and its muscular valves are nearly three times as thick. The structure is similar to that of the right ventricle. Opening into it is the auriculo-ventricular opening from the left auricle, and opening out of it is the aorta.

The aortic opening is guarded by three semilunar valves similar to those in the pulmonary artery, but somewhat stronger. They are open during the contraction of the ventricle, and close when this is over, so that the blood does not run back into the ventricle.

The cavities of the heart are lined with a serous membrane, the endocardium, which is continuous with the lining membrane of the blood-vessels.

Like other organs, the heart needs a blood supply, and this is derived from the coronary arteries, the first branches of the aorta. The blood returns by the coronary veins, which open into the coronary sinus, and this in turn opens into the right auricle.

The heart is also supplied with nerves which regulate its beat under varying conditions, but the muscular contraction is not under the control of the will.

The blood, it will be seen, flows in the heart in the following direction:—Venous blood from the superior and inferior venæ cavæ enters the right auricle, and flows past the tricuspid valve into the right ventricle. By the systole of the ventricle it is driven through the lungs, passing along the pulmonary arteries, and returning by the pulmonary veins, which enter the left auricle. The blood then flows past the mitral valve into the left ventricle, and by the systole of this chamber is driven into the aorta, upwards and downwards through the body, and returns by the veins to the right auricle.

THE ARTERIES (PLATES XIV., XV.)

The arteries are divided into two distinct systems, the pulmonary and the systemic.

The pulmonary circulation has already been described (p. 194). The *systemic circulation* will be described here.

The blood on leaving the left ventricle passes into the main artery of the body, called the **aorta.** This vessel first describes an arch passing over the root of the left lung, and then runs down on the bodies of the vertebræ on the posterior wall of the thorax. It is here known as the descending or **thoracic aorta**.

The vessel, opposite the twelfth dorsal vertebra, passes through an opening in the diaphragm and enters the abdomen, where its name changes to the **abdominal aorta.** This vessel continues to lie on the bodies of the vertebræ as far as the fourth lumbar, where it ends by dividing into the two common iliac arteries. The most important branches of the aorta are—(*a*) *from the arch:* the innominate, the left common carotid, the left subclavian ; (*b*) *from the thoracic aorta :* nine intercostal arteries ; (*c*) *from the abdominal aorta :* the inferior phrenic, the cœliac axis, superior mesenteric, suprarenal, renal, spermatic or ovarian, inferior mesenteric, four lumbar arteries, and the middle sacral.

The **innominate** artery divides into the right common carotid and

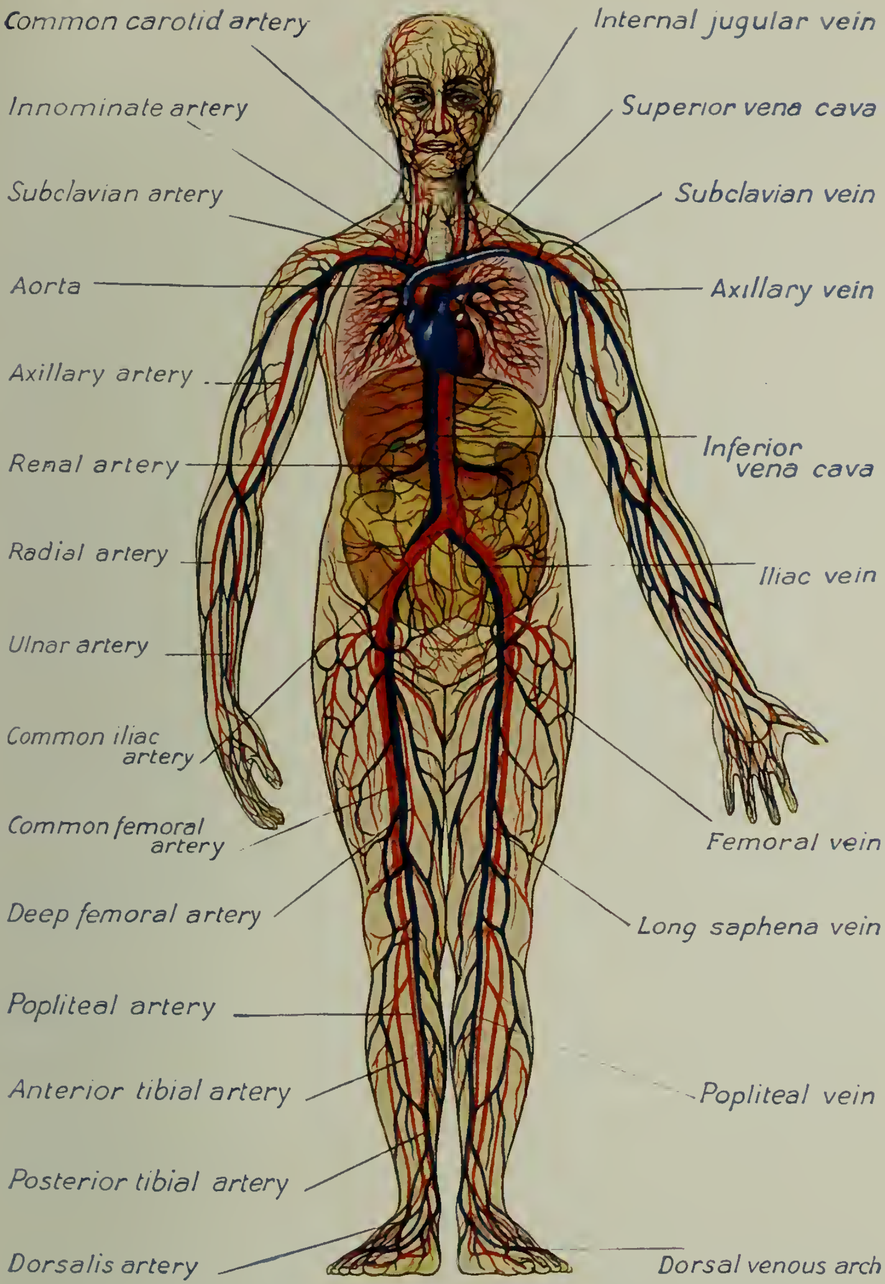

PLATE XIV.—COURSE OF THE CIRCULATION.

the right subclavian. The **common carotid** artery is the large vessel for the head and neck, one artery being situated on each side of the trachea and larynx; it can be compressed, in case of bleeding, against the transverse process of the sixth cervical vertebra, which is situated about one inch above the clavicle. The artery gives off no branches, and divides into the internal and external carotid arteries.

The **internal carotid** artery finds its way into the skull, and supplies branches to the brain and to the eye. Hæmorrhage from this vessel is usually fatal.

The **external carotid** supplies the larynx, the tongue, the face, the nose, and the side of the head by numerous branches. These branches anastomose very freely, so that flaps of skin torn from these parts rarely die from want of blood supply, and should always be replaced and stitched into position.

The **subclavian** artery is the main blood supply to the upper extremity, and it also supplies part of the head, neck, brain, trachea, and thyroid gland. At the outer border of the first rib it becomes known as the axillary. Hæmorrhage from this vessel is difficult to control.

The **axillary** artery is the direct continuation of the subclavian, and passes through the axilla (armpit) to become the **brachial** artery, which runs down the upper arm to end just below the bend of the elbow by dividing into the radial and ulnar arteries.

The **radial** artery runs down on the outer side of the forearm, and at the wrist winds backwards; it then turns forwards to enter the palm of the hand between the first and second metacarpal bones. Its termination in the hand is known as the deep palmar arch.

The **ulnar** artery runs down on the inner side of the forearm and enters the palm of the hand in front, quite superficially, so that cuts from broken glass, etc., frequently divide this vessel. It ends by forming the superficial palmar arch. Bleeding from either the superficial or deep palmar arch is difficult to control, and a tourniquet should be placed upon the brachial artery if the hæmorrhage is severe.

The upper two **intercostal** arteries come from the subclavian artery, and the lower nine from the aorta. They run round the body in the spaces between the ribs (intercostal spaces) and supply the thoracic walls.

The **inferior phrenic** arteries, one on each side, supply the under surface of the diaphragm.

The **cœliac axis** is a short, thick trunk, which immediately divides into the *hepatic* to supply the liver, the *splenic* to supply the spleen, and the *coronary* or *gastric* to supply part of the stomach. The hepatic and the splenic arteries also help to supply the stomach through their branches.

The **superior mesenteric** artery supplies the whole of the small intestine, the cæcum, the appendix, the ascending and the transverse colon. It is the chief artery of the alimentary canal.

The **suprarenal** arteries, two in number, supply the glands of the same name.

The **renal** arteries, one on each side, supply the kidneys, carrying the waste products of the body to the glands.

The **spermatic** arteries in the male supply the testes, passing down along the spermatic cords. They correspond to the **ovarian** arteries in the female, which supply the ovaries.

The **inferior mesenteric** artery supplies the part of the alimentary canal not supplied by the superior mesenteric, viz., the descending, the iliac and pelvic colons, and the rectum.

The **lumbar** arteries (four to five in number) supply the abdominal wall, and send branches to the big mass of muscles on the back.

The **middle sacral** artery is small; it supplies some of the structures in the pelvis.

The **common iliac** arteries are the two main vessels into which the aorta divides. They run round the brim of the pelvis. No branches come off from them, and they soon divide into the internal and external iliac arteries.

The **internal iliac** arteries, one on each side, are the main channels of blood supply to the pelvic organs. They give off branches to the uterus, vagina, bladder, and prostate gland, and also branches which pass out at the back of the pelvis to supply the buttock and the back of the thigh. The last branches are two in number and are called the gluteal and sciatic arteries. The uterine arteries become enlarged during pregnancy.

The **external iliac** artery gives off two branches to supply the abdominal walls, and then leaves the abdomen, passing under Poupart's ligament to enter the thigh, where it changes its name to the common femoral.

The **common femoral** artery is the main channel of blood supply to the lower limb. Its position in the groin is marked by the middle point between the anterior superior iliac spine and the symphysis pubis, and it can here be compressed against the bone in cases of hæmorrhage

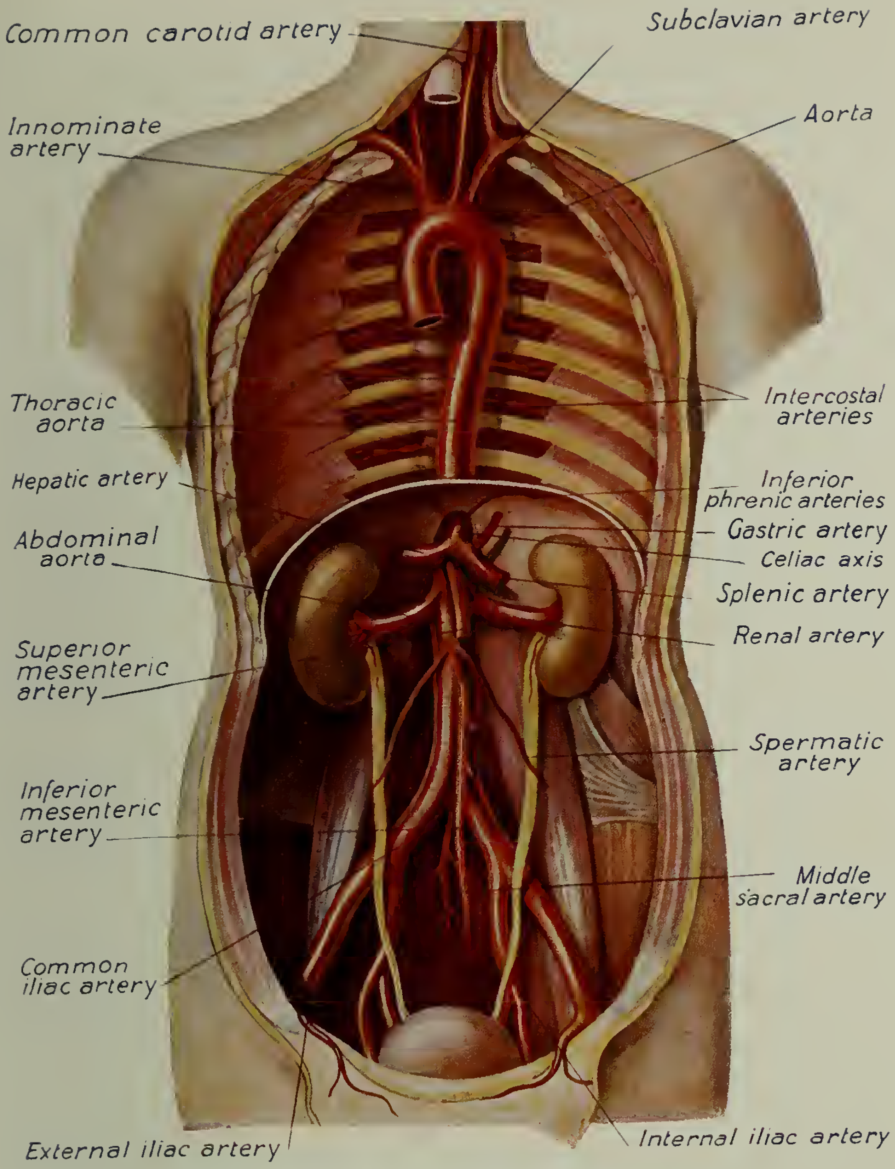

PLATE XV.—THE PRINCIPAL ARTERIES.

from its branches lower down. It is only 1½ inches long, and divides into the superficial and deep femoral arteries.

The **deep femoral** artery supplies the muscles and structures of the thigh, and ends at the knee joint.

The **superficial femoral** artery is the direct continuation of the common femoral, and runs down the front of the thigh to the back of the knee, where it becomes known as the popliteal artery. It has only one named branch, the anastomotica magna.

The **popliteal** artery is so named as it is found in the popliteal space or ham. It gives off branches which supply the knee joint and the surrounding muscles. On entering the back of the leg it divides into the anterior and posterior tibial arteries.

The **anterior tibial** artery runs to the front of the leg between the tibia and fibula. It supplies the muscles of the leg, and ends in the foot as the **dorsalis pedis** artery, which gives branches to the dorsum of the foot and toes.

The **posterior tibial** artery runs down the leg deep to the great calf muscles, which it supplies by numerous branches.

At the back of the internal malleolus it divides into the **internal** and **external plantar** arteries, which supply the sole of the foot and form superficial and deep plantar arches similar to the palmar arches in the hand.

VEINS (PLATES XIV., XVI.)

As in the arterial system, there are two distinct sets of veins, the *pulmonary* and the *systemic*. The pulmonary veins return the blood to the heart from the lungs, and contain arterial blood: this forms part of the pulmonary circulation, already described (p. 194). The **systemic veins** return the venous blood from the body generally to the right auricle of the heart. A subdivision of the systemic venous system is the portal vein, which collects the blood from the intestines and carries it to the liver.

The systemic veins start in the network of capillaries in which the arteries finish, and gradually collect into larger and larger vessels as they approach the heart. In the veins are placed valves which allow the blood to flow onward to the heart, but not in the reverse direction. The circulation in the veins is much slower than in the arteries. Most of the medium-sized arteries, such as the radial and the anterior tibial, are accompanied by two veins which lie on either side of the arteries and are known as venæ comites (companion veins), so that if the course of the arteries is known that of the veins is known also. The large veins have received special names, differing in many cases from the artery which they accompany.

The **superior vena cava** returns all the blood from the head and neck and thorax to the right auricle of the heart. It is formed by the junction of the right and left **innominate** veins, which in turn are formed by the junction of the internal jugular and subclavian veins on each side.

The **internal jugular** vein is the great vein of the neck, and lies to the outer side of the common carotid artery. It receives all the blood from the brain, side of the head, neck, tongue, face, nose, and eye, and ends by joining the subclavian vein. At the junction of these two veins the lymph is poured back into the blood-stream by the thoracic duct and the right lymphatic duct.

The **subclavian** vein is the direct continuation of the axillary vein, which receives the blood from the upper extremity. Into it also opens the external jugular vein, a prominent vein on the side of the neck, on which the operation of venesection is sometimes performed. It joins the internal jugular vein to form the innominate vein.

The blood inside the skull is collected into large venous trunks called *sinuses*, which lie in the dura mater (p. 222). These sinuses must not be confused with the air sinuses described in the bones of the skull (p. 180).

One of these sinuses—the transverse—lies close to the middle ear and mastoid antrum, and may become inflamed when suppuration is occurring in these structures. The blood then clots in the sinus, and produces a condition known as lateral sinus thrombosis.

The **inferior vena cava** returns most of the blood from the abdomen, the pelvis, and the lower extremities to the right auricle. It is formed on the body of the fifth lumbar vertebra by the union of the two common iliac veins, and it receives as tributaries the renal veins from the kidneys, the suprarenal, and ovarian or spermatic veins. To reach the right auricle it has to pierce the diaphragm, and just before doing so it receives the hepatic veins from the liver.

The **common iliac** veins are formed by the junction of the internal and external iliac veins.

The **internal iliac** vein receives the blood from the pelvic organs, the lower part of the rectum, the bladder, uterus, and vagina, and also tributaries from the buttocks—the gluteal and sciatic veins.

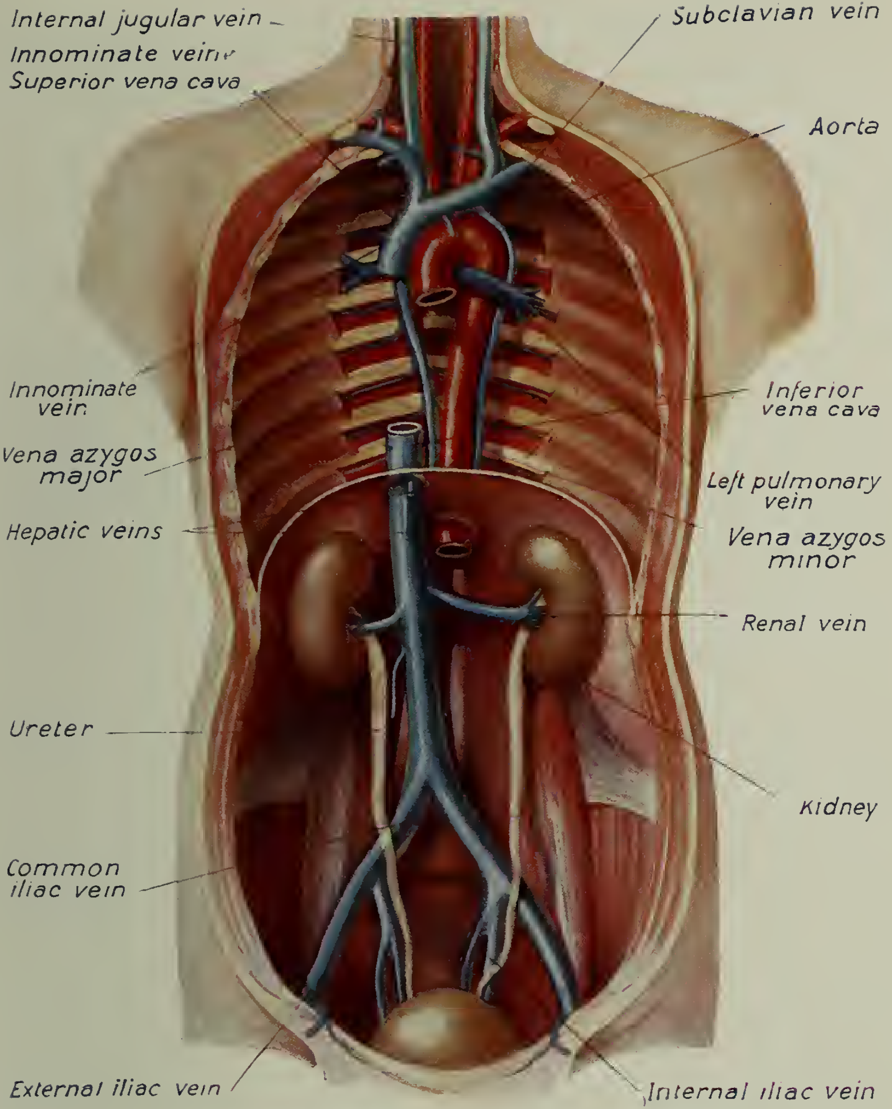

PLATE XVI.—THE PRINCIPAL VEINS

The **external iliac** vein is the direct continuation of the common femoral vein, which is formed by the union of the superficial and deep femoral veins. The superficial femoral vein starts as the popliteal, which is formed by the junction of the *venæ comites* of the anterior and posterior tibial arteries.

The **long saphena** vein is a large superficial vein which is found on the inner side of the leg. It starts on the dorsum of the foot, and ends in the groin by joining the common femoral vein.

The **short saphena** vein also starts on the dorsum of the foot, and runs up the posterior and outer aspect of the leg to join the popliteal vein in the ham.

These two last-mentioned veins frequently become dilated and tortuous, forming the condition known as varicose veins.

The **portal system** (Fig. 11, p. 213): All the blood from the intestines, the stomach, and spleen is gradually collected into a large venous trunk, the portal vein, which lies in the abdomen in front of the inferior vena cava. This vein runs up to the liver, where it divides into two branches, one for each half of that organ.

In the liver the veins break up into capillaries, which surround the liver cells, and then gradually collect again into veins—the hepatic veins—which open into the inferior vena cava.

It will be seen that there are two sets of capillaries in the portal system—one between the arteries and the portal vein, and one between the portal vein and the hepatic veins. In cases where the liver is diseased the circulation is obstructed and the veins become dilated and varicose.

The blood from the rectum, except the extreme lower portion, enters the portal system. If the rectal veins become dilated and varicose, the condition known as hæmorrhoids is produced.

The heart also has a system of veins, which return to the right auricle by means of the coronary sinus (p. 194).

V.—THE LYMPHATIC SYSTEM

The lymphatic system (Plate XVII.) consists of minute vessels, glands, a reservoir, and two ducts. Through it circulates the lymph.

The **lymphatics**, which are exceedingly delicate vessels with transparent walls, permeate all the organs and tissues of the body except the cartilage, nails, and hair. These minute vessels form a network in all tissues, from which small trunks emerge which pass to the lymphatic glands or to join some larger trunk. The lymph from the tissues passes through these vessels to the lymphatic glands. The lymphatics from the intestines contain a large quantity of fat that has been digested; this causes the lymph to be milky-white (chyle) instead of transparent. These lymphatics from the intestines are known as the lacteals.

The **lymphatic** or **absorbent glands** are small solid glandular bodies situated upon the course of the lymphatic and lacteal vessels. The most important groups are found in the axillæ, the groins, and the neck, but they are present in large numbers in the abdomen and thorax, and in other parts of the body. In size they vary from a hemp-seed to a small almond. The lymph in the lymphatic vessels is filtered through these glands on the way to the thoracic and lymphatic ducts, and they arrest all foreign bodies such as cancer cells and bacteria. For this reason they frequently become inflamed when their lymphatic vessels come from a part where there is a septic wound.

The greater part of the lymph and the chyle, after passing through the lymphatic glands, is gradually collected into a few large vessels which enter into a reservoir in the abdomen, termed the **receptaculum chyli.** This receptacle is situated on the first lumbar vertebra, and is about an inch in length, but on account of its delicate walls is difficult to see.

From it leads a large duct, the **thoracic duct**, which ascends through the diaphragm into the thorax. It traverses this cavity and passes into the left side of the neck, where it opens into the junction of the internal jugular with the subclavian vein. All the lymph of the lower extremities, the pelvis, the abdomen, the left side of the thorax, the left side of the head and neck, and the left upper extremity passes into this duct.

On the right side of the neck is a small duct about half an inch long, the *right lymphatic duct*, which receives the lymph from the right side of the head and neck, the right upper extremity, and the right side of the thorax. This duct opens on the right side in a corresponding position to the thoracic duct on the left.

The circulation of the lymph is thus seen to be as follows ;—It is

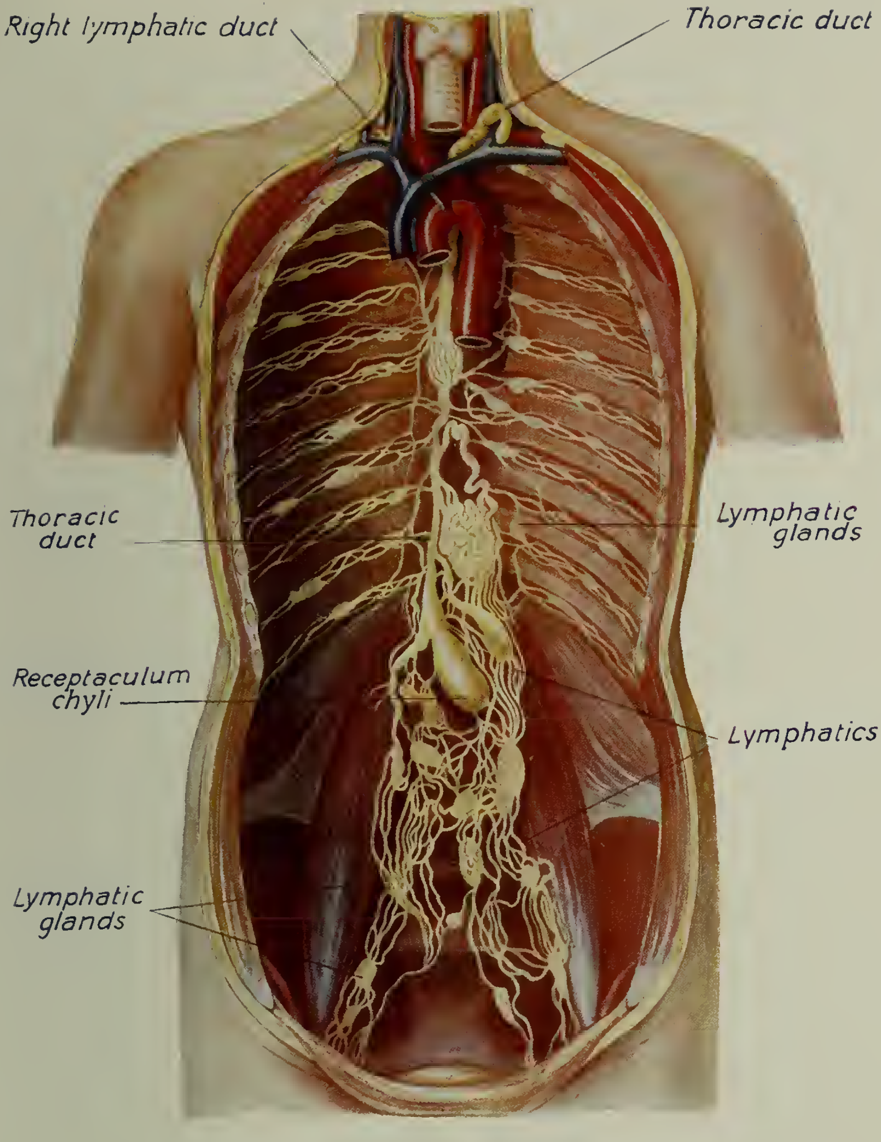

PLATE XVII.—LYMPHATIC VESSELS, GLANDS, AND DUCTS.

exuded from the blood-vessels into the tissues, is gradually collected into a network of lymphatics, and passed through ducts to the lymphatic glands, where it is filtered. It then passes mainly to the receptaculum chyli or the thoracic duct, to enter the blood-stream again; some of it however, passing to the blood by means of the right lymphatic duct.

VI.—THE RESPIRATORY SYSTEM

The respiratory tract (Plate XVIII.).—In ordinary quiet breathing the air is drawn into the lower part of the nose, and passes through the pharynx into the larynx; it then passes down the trachea, and enters the air-sacs in the lungs through the bronchi and their smaller ramifications, the bronchioles. In expiration the air is expelled along the same path.

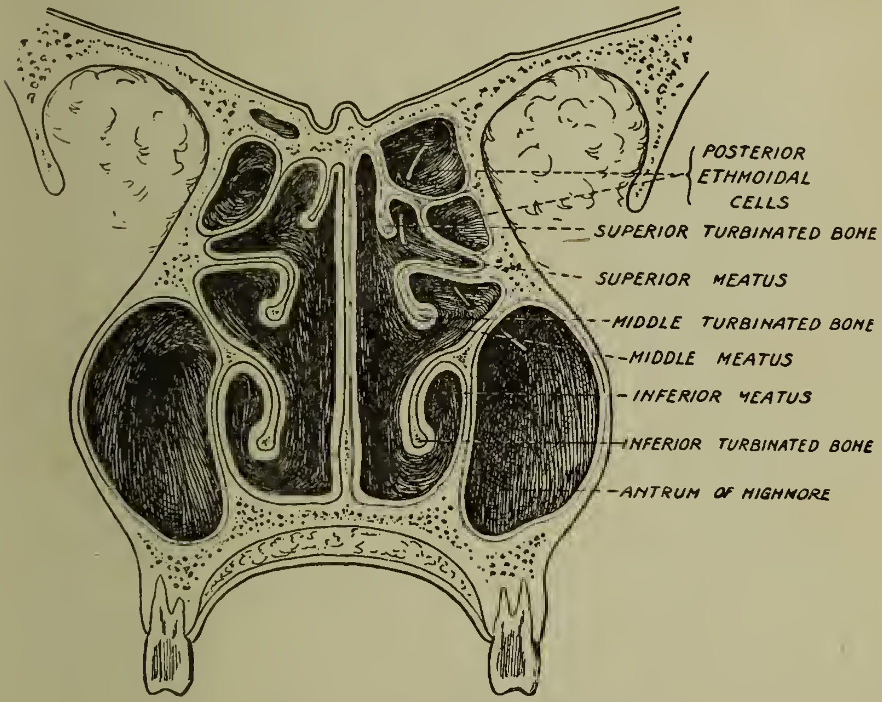

Fig. 5.—SECTION THROUGH THE NOSE.

In deeper breathing and in improper breathing the air also passes in through the mouth.

The nose (Fig. 5).—The nose consists of a bony and cartilaginous framework which is covered over with a mucous membrane. It serves two purposes. In the upper part of the nose end the branches of the olfactory nerve, and the mucous membrane is the special sense-organ of smell. The lower part is respiratory in function, the air being purified and warmed as it passes through.

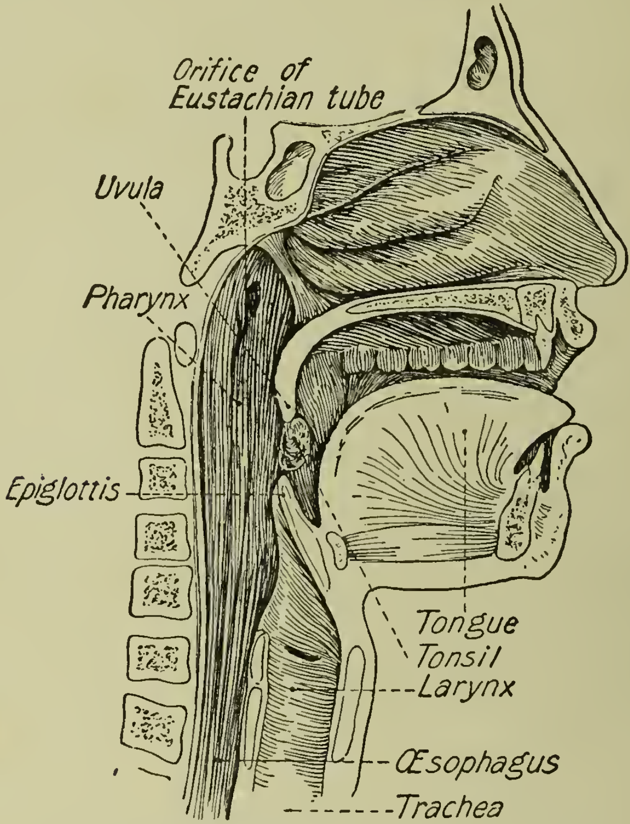

Fig. 6.—The Pharynx, showing the Opening of the Eustachian Tube.

The nose is divided by the *septum* into two separate compartments (nasal fossæ), which open in front at the anterior nares, and behind into the naso-pharynx at the posterior nares. The septum is a thin wall of bone and cartilage, and on the outer wall of each nasal fossa there are three bony projections, the *turbinate bones*, which partially divide the fossa into three compartments.

Opening into the lower compartment is the nasal duct, the canal by which the tears pass from the conjunctival sac (p. 226) into the nose.

In the other compartments are the openings of the big air sinuses of the head. The most important of these are the *frontal sinuses*, situate just above the eyebrows, and the *antrum of Highmore*, a large cavity situated just below the orbit on each side in the superior maxillary bone.

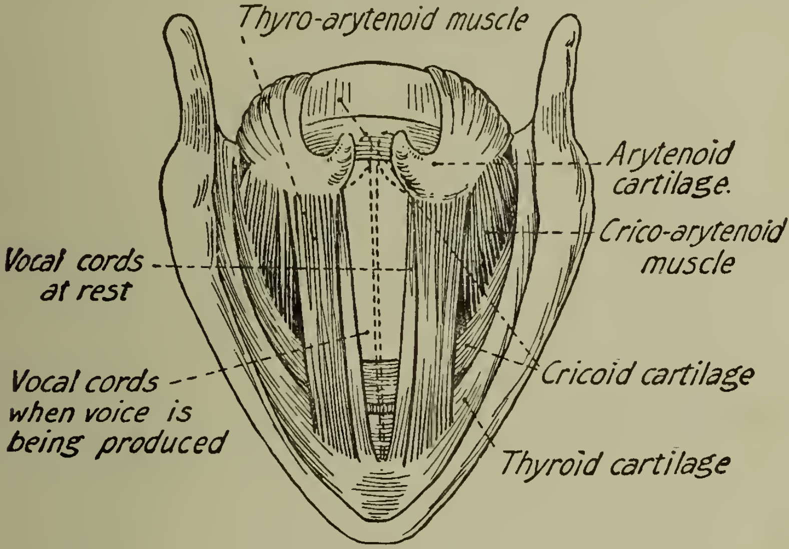

Fig. 7.—The Larynx.

The roots of several of the teeth project into this sinus, and suppuration may occur in it as a result of decay of the teeth. Other sinuses entering into the nose are the *sphenoidal sinuses* and the *ethmoidal cells*.

The posterior nares open into the *naso-pharynx*, the upper part of the pharynx described under the Alimentary Canal. Into the naso-pharynx opens the *Eustachian tube* (Fig. 6), a canal leading from the pharynx to the middle ear, along which inflammation may pass. It is in the naso-pharynx that adenoid growths are so frequently found, and by blocking up the air-way lead to mouth-breathing and its attendant evils. By interfering with the orifice of the Eustachian tube they also predispose to deafness.

The air traversing the pharynx passes into the larynx.

The larynx (Fig. 7).—The larynx is the organ of the voice, and opens into the pharynx above and the trachea below. It is situated in the front and upper part of the neck, and can be readily seen and felt. It is composed of cartilages held together by ligaments and moved by muscles, and the whole is lined with a mucous membrane.

The important cartilages are the *thyroid*, forming the prominent projection of the larynx, the *pomum Adami* (Adam's apple); the *cricoid*, lying just above the trachea; the *arytenoids*, to which the vocal cords are attached; and the *epiglottis*, which is attached to the base of the tongue and forms a kind of a lid over the entrance of the larynx.

The true vocal cords, by means of which the voice is produced, are two thin shelves of fibrous tissue with internal free edges, which are attached to the arytenoid cartilages behind and the thyroid cartilage in front.

During respiration the free edges of the cords are widely separated; but when talking, they are approximated, and the air forced through the narrowed opening between them causes the edges to vibrate and so produce a sound. This primary sound is modified by the nose, mouth, lips, tongue, etc., into the various sounds which constitute speech.

The larynx can be examined, and the movements of the cords seen, during life, by means of the laryngoscope.

Foreign bodies, such as pieces of meat, etc., which may enter the larynx during eating are apt to stick in the narrow passage between the vocal cords and cause suffocation. The muscles of the larynx are nearly all supplied by one nerve, damage to which causes paralysis of the muscles and consequent loss of speech.

On passing through the larynx the air enters the trachea.

The trachea (windpipe).—The trachea is a tube composed of about eighteen rings of cartilage leading from the larynx to the lungs. It is about 4½ inches in length, and, starting in the neck, passes into the thorax, where it ends by dividing into the two bronchi. It is this tube that is opened in tracheotomy—an operation performed to allow the patient to breathe when there is any obstruction in the upper air passages.

The *bronchi* are the main divisions of the trachea, the right being of

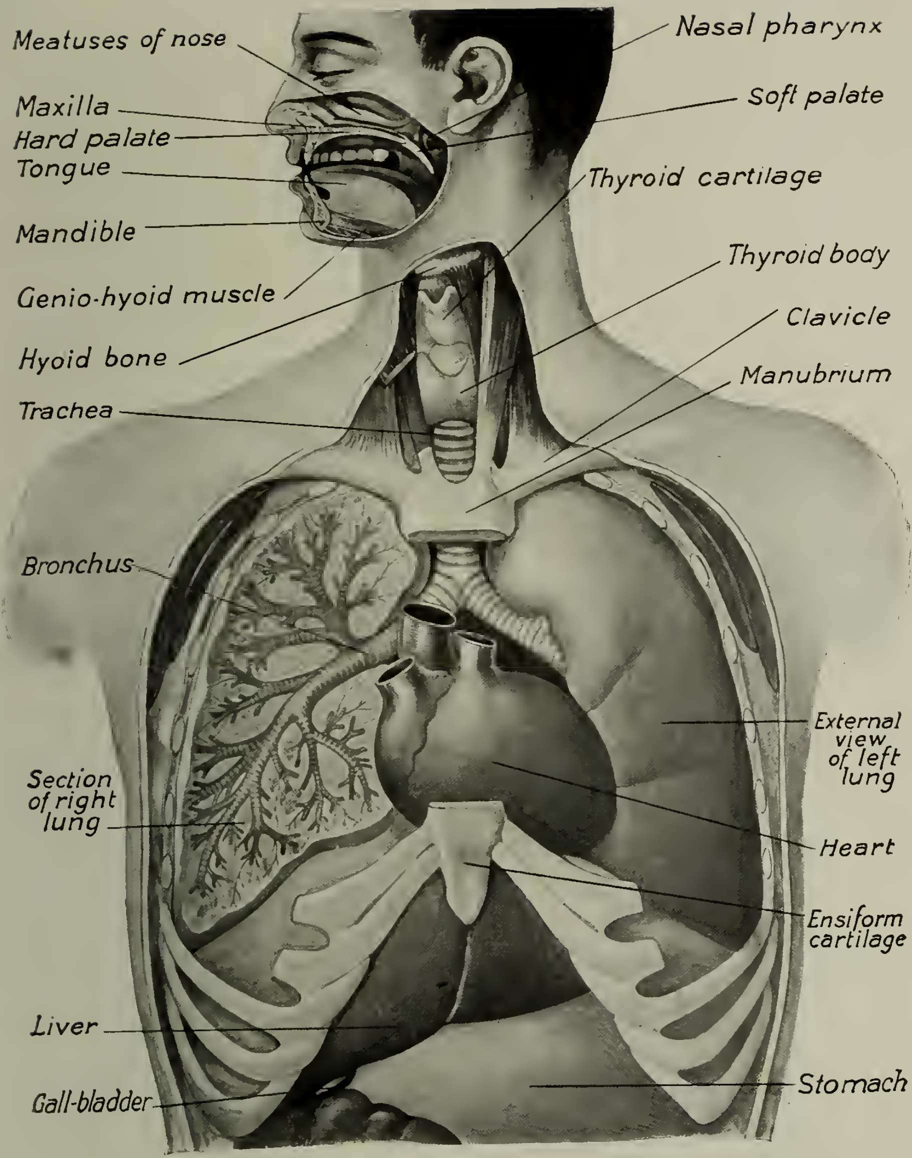

PLATE XVIII.—THE RESPIRATORY TRACT.

a little larger calibre than the left, as the right lung is the larger of the two. The bronchi divide into two branches, and then into two again, and so on till minute tubes are produced, which open into little air-sacs. These small tubes (bronchioles) and little sacs (alveoli) constitute the bulk of the lungs.

The lungs.—The lungs, two in number, occupy a large part of the thorax. Each lung is free except at the median part or root, where it is attached by the blood-vessels and the bronchi. The lungs are conical in shape, and covered by the pleuræ.

The *pleura* is a smooth-walled sac lining the thoracic cavity on each side, and reflected on to the lung at the root, completely covering it. In this way a cavity is formed, the pleural cavity, in which the lungs can move freely without friction. Like the peritoneal cavity, there is no actual space in health, the lungs completely filling it, but fluid such as blood or serum may collect in it by squeezing the lung to one side. When this fluid is removed the lung again expands to fill the cavity.

The right lung has three lobes, the left has two, and both lungs have an apex and a base. The apex projects upwards into the root of the neck, and the base rests on the diaphragm.

The lung substance consists of numberless *air sacs* (*alveoli*) into which the small bronchioles open.

When the thorax expands and the diaphragm descends, the lungs follow the movements, and the air rushes into the air-sacs and fills up the increased space; and when the thorax collapses and the diaphragm ascends, the lungs resume their original size and drive the air out again through the bronchioles. By this means new air is constantly entering into the lungs with each inspiration. It gives up part of its oxygen to the blood in the lungs, and is then driven out by the movement of expiration. Venous blood is thus found in the pulmonary artery, and arterial blood containing fresh oxygen in the pulmonary vein.

The **diaphragm** is a large flat muscle which separates the abdominal from the thoracic cavity. It is attached to the ribs, and when it contracts it increases the size of the thoracic cavity and depresses the abdominal organs. It is thus an important muscle of respiration. It is supplied by the phrenic nerve, which leaves the spinal cord in the neck. In cases of failure of respiration under an anæsthetic this nerve is sometimes stimulated by an electric battery.

VII.—THE ABDOMEN AND DIGESTIVE SYSTEM (PLATE XIX.)

THE ABDOMEN

The abdomen is that part of the body which lies between the thorax above and the pelvis below. It is bounded behind by the lumbar portion of the spinal column, and the lower ribs partly enclose it above.

The rest of the abdominal walls consists of layers of muscles running in various directions, and between them are sheets of fat and connective tissue (fasciæ). In the young and vigorous these muscles are in a state of tonic contraction and hold the different organs in their proper position, but in the elderly, and especially in women whose muscles have been stretched by repeated pregnancies, they become lax, and various abnormal conditions of the enclosed organs, such as movable kidney, occur.

About the middle of the abdomen is a puckered depression known as the **umbilicus** or navel. This is a scar marking the place where the umbilical cord of the fœtus was attached. This cord connected the child with the placenta, from which it received its food and oxygen whilst in the maternal uterus.

The muscles, lower ribs, and spinal column enclose a large space, the **abdominal cavity**, in which the various organs of digestion and excretion are found. This space during life is completely filled by the various organs, and is lined throughout by a smooth lining membrane, the **peritoneum**, which is slightly lubricated by lymph. This smooth membrane allows the constant movements of the intestines to take place without friction, and not only lines the abdominal wall but is reflected over all the contents of the abdominal cavity, following them into all their corners and twists. As a result of this, the hand, when placed in the abdomen through a hole made in the abdominal wall, enters a complicated cavity called the peritoneal cavity, the smooth lining membrane of which is the peritoneum. Inflammation of this membrane is called peritonitis, and is a very serious condition owing to the very large extent of the membrane and the important organs it covers.

The various folds of the peritoneum surrounding the organs have received special names. The folds attached to the stomach are called **omenta**, of which the largest is the *great omentum* (Fig. 21, p. 242). In it a large amount of fat is usually found, and it lies like an apron over the intestines, and serves to protect them and to keep them warm. The double fold of peritoneum securing the small intestine to the abdominal

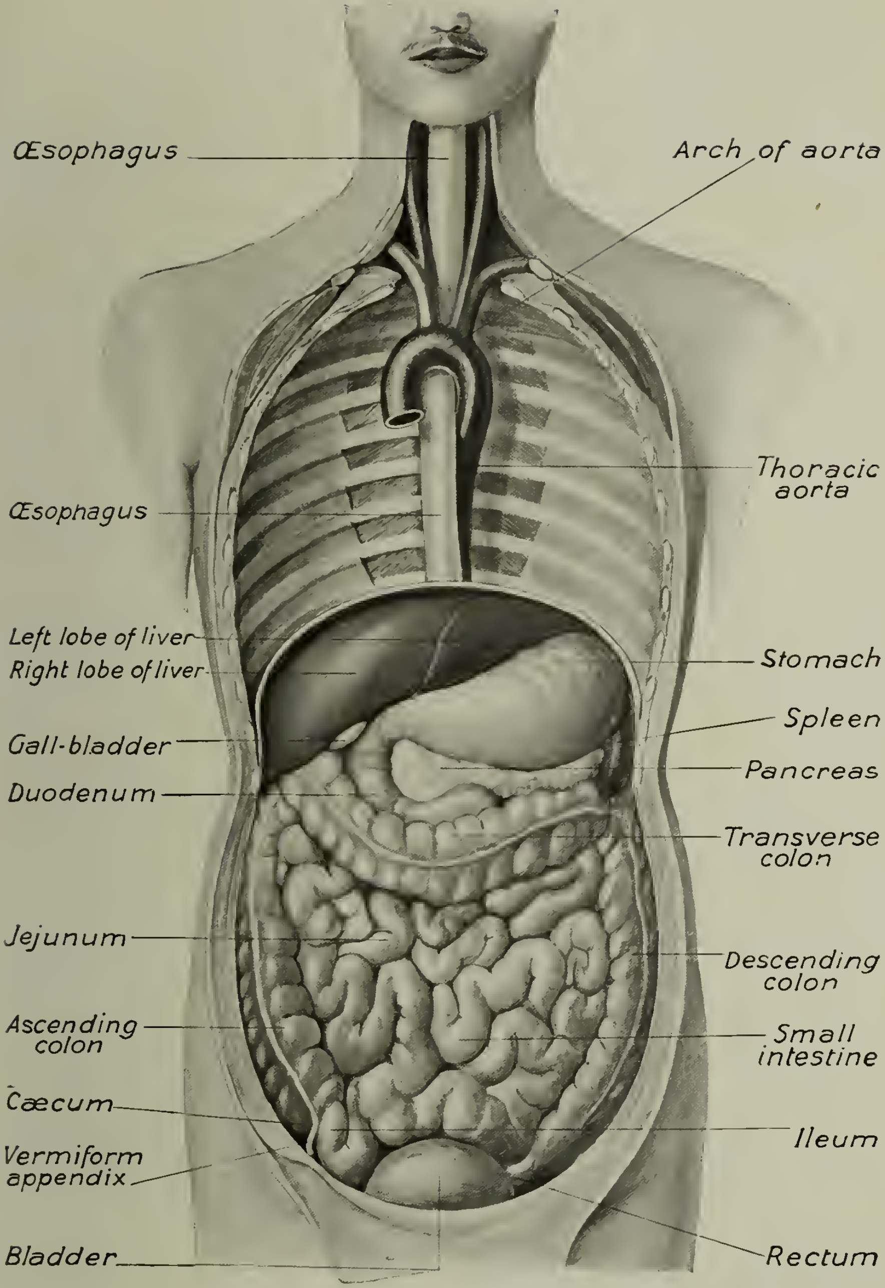

PLATE XIX.—THE ALIMENTARY TRACT.

wall is termed the *mesentery* (Fig. 21, p. 242), and the folds holding the large intestine in place are known as the *mesocolon*.

The peritoneum also covers the various organs in the pelvis, the uterus, bladder, and rectum, dipping down between them. A large pouch of peritoneum is thus formed lying behind the uterus, between it and the rectum, and is called **Douglas's pouch.** It is the lowest part of the peritoneal cavity, and therefore any fluid such as pus, blood, or serum extravasated into this cavity usually finds its way into Douglas's pouch.

For convenience of description the abdomen has been artificially divided into nine compartments: three upper—the right hypochondrium, the epigastrium, and the left hypochondrium; three middle—the right lumbar region, the umbilical region, and the left lumbar region; and three lower — the right iliac fossa or inguinal region, the hypogastrium, and the left iliac fossa or inguinal region.

THE DIGESTIVE SYSTEM

The **alimentary canal** (Fig. 8) consists of a continuous tube about 30 feet in length, extending from the mouth to the anus. In it the various processes of digestion take place, and the nutritious part of the food is absorbed through its walls, whilst the non-nutritious part is passed on, and finally excreted as the fæces. Numerous important glands and organs pour

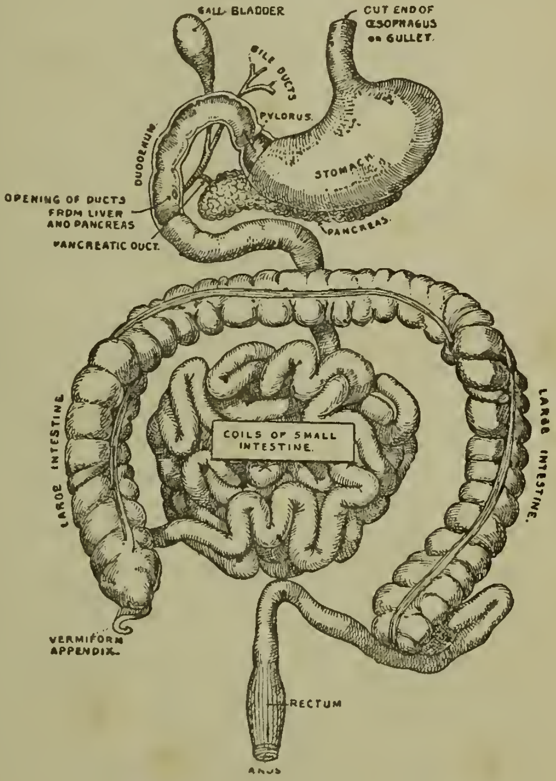

Fig. 8.—The Alimentary Canal.

their secretions into the alimentary canal, which is divided up into several parts, the following being the most important:—

The **mouth** (Plate XVIII.) is about 2½ inches long. Its roof is formed by the *hard* and *soft palates*, the latter of which ends in a tongue-like projection, the *uvula*, which hangs free from the roof of the mouth. In the floor is a muscular organ, the *tongue*, whilst on each side the cavity is bounded by the cheeks and the teeth.

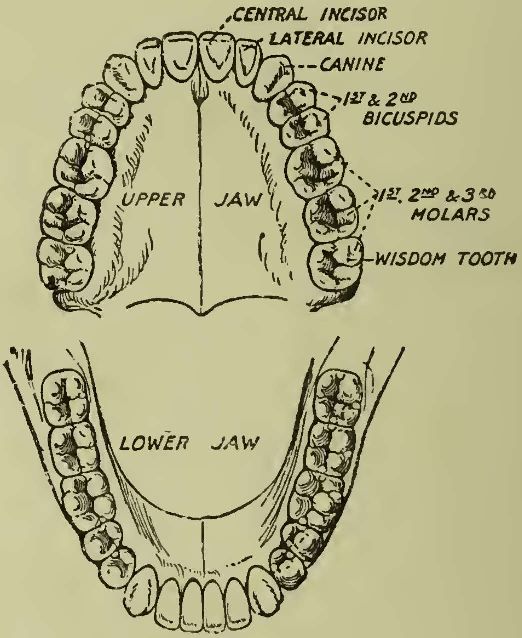

Fig. 9.—The Permanent Teeth.

The **teeth**: Two sets of teeth are distinguished—the milk, or temporary set, and the permanent set.

The milk teeth are 20 in number, five on each side in the upper and lower jaws.

Their names, starting from the middle line, are central incisor, lateral incisor, canine, and two premolars. The first tooth to erupt is usually the central incisor in the lower jaw, and it appears about seven months after birth. A child should have the full set of temporary teeth at two years.

The permanent teeth (Fig. 9) are 32 in number, and their names, starting from the middle line, are central incisor, lateral incisor, canine, two bicuspids, two molars, and a wisdom tooth or third molar. The first of the permanent set to appear is the first bicuspid in the lower jaw, at six years old. The permanent dentition should be complete by about the twelfth year, except for the wisdom tooth, which may not erupt at all, or may only appear late in life. The delayed appearance of the wisdom teeth accounts for many of the cases of supposed third dentition.

Opening into the mouth are the ducts of the three **salivary glands** (Fig. 16, p. 235), whose secretions are the first agents of digestion. They are the parotid gland, the submaxillary gland, and the sublingual gland.

The *parotid gland* lies behind and below the ear, and its duct (Stenson's) opens in the mouth opposite the second upper molar tooth. If the mouth is not kept clean, inflammation may spread up the duct and affect the gland (parotitis). This gland is also inflamed in mumps.

The *submaxillary gland* lies just under the lower jaw. Its duct (Wharton's) opens underneath the tongue on either side of the middle line (frænum linguæ).

The sublingual ducts (ducts of Rivini) are numerous and open into the floor of the mouth under the tongue.

Two folds of mucous membrane, the **pillars of the fauces**, run on each side from the soft palate to the base of the tongue, and separate the mouth from the pharynx. Between the two pillars lies a mass of lymph tissue, **the tonsil** (Fig. 6, p. 204), which is frequently enlarged in children.

The **pharynx** (Fig. 6) is a muscular bag about 4½ inches long. Its upper part lies behind the nose, and is termed the naso-pharynx; through it the air passes on its way to the lungs. The middle part lies behind the mouth, and through it pass both food and air. The air then passes into the larynx, whilst the food passes through the third part of the pharynx, which lies behind the larynx, to enter the œsophagus. No important glands open into the pharynx, through which the food is passed quickly by the action of swallowing.

The **œsophagus** extends from the pharynx to the stomach, and is about 9 inches in length. It is a muscular tube lined with a mucous membrane, and is only to a slight extent controlled by the will, so that once anything has entered the œsophagus it is carried onwards towards the stomach in spite of any effort to stop it. The œsophagus starts in the neck, passes down through the thorax lying just behind the heart, pierces the diaphragm on the left side, and enters the stomach by the cardiac opening—the opening nearest to the heart.

No important glands open into the œsophagus. The food takes about ten seconds to traverse this part of the alimentary canal, and no digestive changes occur in it.

The **stomach** (Fig. 8) is a fibro-muscular bag lined with a mucous membrane. It is conical in shape, and lies in the upper and left side of the abdomen. It is from 10 to 12 inches long, and 4 to 5 inches wide in its widest part. The base of the stomach, which is known as the *fundus*, lies well to the left side, being only separated from the heart by the diaphragm and the pericardium, so that when distended with food or gas it may embarrass the heart's action. The œsophagus opens into it on the left side by means of the cardiac orifice, whilst the small intestine starts at its other end at the *pylorus*. The opening into the small intestine is guarded by a strong sphincter muscle, the pyloric muscle, which prevents large masses of food from passing into the small intestine.

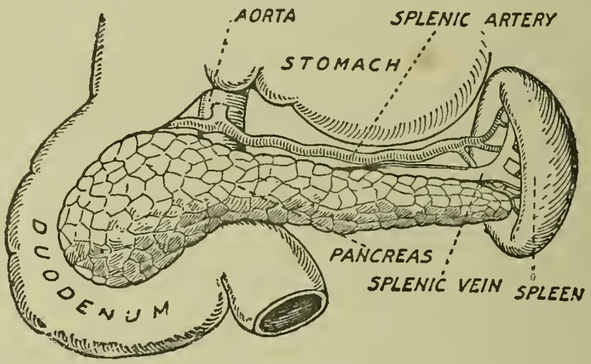

Fig. 10.—The Pancreas and Spleen.

Numerous glands, which secrete digestive juices, open into the stomach.

The **small intestine**: This portion of the alimentary canal is about 22 feet in length, and consists of a muscular tube, lined by a mucous membrane and covered by the peritoneum, by means of which it is fastened to the back of the abdominal cavity. It is divided into three portions, the duodenum, the jejunum, and the ileum.

The **duodenum**, the first portion of the small intestine, is shaped like a horse-shoe, and between the two limbs lies the head of the pancreas. It is 8 to 10 inches in length, and has opening into it the common bile-duct, bringing bile from the liver and the gall-bladder, and the duct of the pancreas, besides numerous other glands which lie in its walls. It is in this portion of the alimentary canal that digestion is most active.

Before describing the other parts of the small intestine, the jejunum and the ileum, some account must be given of two organs that play an important part in the process of digestion—the pancreas and the liver.

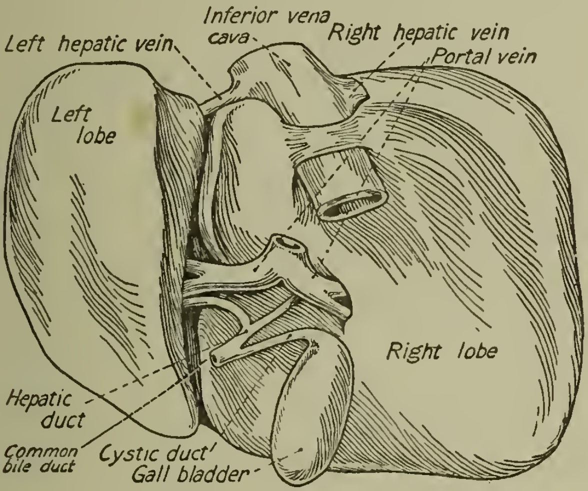

Fig. 11.—The Liver.

The **pancreas** (Fig. 10) is a soft glandular organ in the upper part of the abdomen and closely connected with the duodenum. It lies behind the peritoneum. Its secretion contains ferments which are very active agents in digestion, and are poured into the duodenum through its duct —the duct of Wirsung. This opens into a small sac, into which the common bile-duct also enters, and the sac then opens into the duodenum about its middle.

The **liver** (Fig. 11) is a solid glandular organ lying in the upper and right side of the abdomen. It weighs from 3 to 4 lbs. Amongst its functions is that of the secretion of bile, which passes into the small intestine and aids digestion. The bile leaves the liver by two ducts, the right and left hepatic ducts, which unite to form a common hepatic duct, and this is joined by the duct of the gall-bladder to form the common bile-duct (Fig. 11).

The **gall-bladder** is a conical bag lying on the under surface of the liver just at the tip of the right 9th rib. It contains bile, and in it gall-stones are formed. The duct—the cystic duct—joins the common hepatic duct to form the common bile-duct. The common bile-duct is about 4 inches long, and passes downwards to join the pancreatic duct, the two ducts opening into the duodenum. If a gall-stone should pass into the common bile-duct and block it, the bile could no longer flow into the intestine; it would be reabsorbed into the blood and cause the patient to become jaundiced.

The **jejunum** is about 8 feet in length, and is the part of the small intestine where the absorption of food products is most active. It passes invisibly into the **ileum**, which is closely similar in structure to the jejunum, but is not quite so thick or so vascular. The ileum is about 12 feet long, and it and the jejunum make up most of the coils of intestine which are seen when the abdomen is opened.

Projecting from the ileum in two out of every hundred people is a pouch of intestine or a fibrous cord which is known as Meckel's diverticulum. It is part of a fœtal structure and should entirely disappear. If it persists it may catch and strangle another piece of intestine, causing intestinal obstruction.

The **large intestine**: The end of the ileum is on the right side of the lower abdomen, and it ends in the first part of the large intestine, the cæcum. The opening is guarded by a valve so that the contents can only pass in one way; this is called the *ileo-cæcal valve.* The large intestine measures from 5 to 6 feet in length, and is of larger size and more fixed than the small intestine. In it water is absorbed from the liquid fæces of the small intestine, and they become semi-solid. The large intestine is divided into the cæcum, the ascending colon, the transverse colon, the descending colon, the iliac and pelvic colons, and the rectum.

The **cæcum**, about 3 inches in length, is a dilated pouch of the large intestine just below the entrance of the small intestine. It is situated in the right iliac fossa, and from its left side projects the vermiform appendix.

The **appendix**, inflammation of which is called appendicitis, is a blind tubular projection from the cæcum. It is 3 to 4 inches long, and about the thickness of a large quill. Its function is doubtful, and its loss causes the patient no inconvenience.

Leading out of the cæcum is the **ascending colon**, which runs up to the under surface of the liver, and then turns abruptly across the abdomen to continue as the **transverse colon**, which is the most movable part of the large intestine. The transverse colon is about 18 inches in length, and ends at the lower edge of the spleen. The colon then turns abruptly downwards as the **descending colon.** This descending colon runs downwards to the left iliac fossa, where it becomes the **iliac colon.** It is the iliac colon that is opened in the operation of colostomy, which is performed to allow the fæces to escape in cases where the intestine is blocked lower down, as in cancer of the rectum. The part of the colon lying in the pelvis is known as the **pelvic colon**, but it and the iliac colon are sometimes spoken of as the **sigmoid flexure** of the colon.

The **rectum** (Fig. 8) is the last portion of the large intestine, and it receives its name from its nearly straight course. It is about 4 inches in length, lies in the pelvis, and ends at the anus. Running in its walls are numerous large veins, dilatation and hypertrophy of which cause the condition known as hæmorrhoids.

The **anus** is surrounded by a muscle, the external sphincter muscle, which is under the control of the will, and the contraction of which prevents the escape of fæces. This muscle is a voluntary muscle, whilst the rest of the intestine has a double coat of involuntary muscle. This involuntary muscle is not controlled by the will, and in health is always in a condition of rhythmical movement (peristalsis) which constantly drives the fæces onward to the anus.

THE SPLEEN

The function of this organ (Fig. 10) is not exactly known, but probably it has some connection with digestion.

It is a solid organ, made of lymphoid tissue, which is situated in the left upper abdomen just to the left of the fundus of the stomach, to which it is closely attached. It is about 5 inches in length, and is surrounded by the peritoneum. It has no duct, but it is very freely supplied with blood-vessels, and its veins open into the portal system. Its loss seems to cause the patient little inconvenience. In some diseases, such as malaria, it becomes enormously enlarged.

THE THYROID AND THYMUS GLANDS

Although these glands are not known to have any connection with digestion—their function, indeed, is a mystery—they may be noticed here.

The **thyroid** (Plate XVIII.) is situated in the neck, and consists of two lateral lobes united by an isthmus, which lies across the second, third, and fourth rings of the trachea.

It has no duct, so that its secretion is absorbed into the blood.

Enlargement of this gland is known as goitre, a disease very prevalent in Switzerland. Congenital absence of it causes a condition of imbecility known as cretinism; and atrophy of it, later in life, myxœdema.

The **thymus** gland attains its full size two years after birth, and then gradually shrinks away. It is situated just over the great vessels in the thorax and lower part of the neck, and is composed of lymphoid tissue.

VIII.—THE URINARY AND GENITAL SYSTEMS

THE URINARY ORGANS

It is by means of these organs that the waste products of the body are removed from the blood and excreted as the urine. They consist of two kidneys, their ducts the ureters, the urinary bladder, and the urethra (Fig. 12).

The **kidneys** are situated in the right and left lumbar regions of the abdomen behind, and are covered on their anterior surface by the peritoneum. They are about four inches in length, two inches in breadth, and one inch thick. They are solid for the most part, but have a small cavity on the inner side—the pelvis of the kidney, from which the ureter starts. The solid portion of the organ consists of innumerable small tubes lined with cells which extract waste products from the blood in the renal arteries, so that purified blood returns by the renal vein to the general circulation. Occasionally people are born with only one kidney, or the two organs may be joined across the middle line, giving the condition known as horse-shoe kidney.

Lying above the kidneys are two small organs of unknown function —the **suprarenal bodies.** That on the right side is shaped like a cocked hat, whilst the left is semilunar in outline.

The duct of the kidney, or **ureter**, is about 14 inches in length. It starts at the pelvis of the kidney and runs down behind the peritoneum to the urinary bladder in the pelvis, entering the bladder at its lower and posterior part. In the female the ureter passes close to the uterus and vagina, and may be injured in operations on those organs. There is a ureter to each kidney.

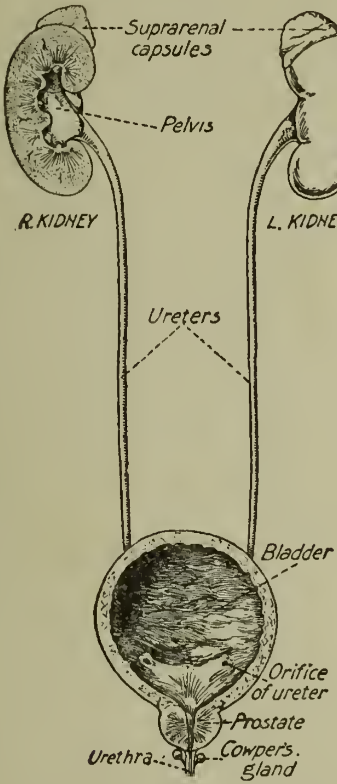

Fig. 12.—The Urinary Organs.

The **urinary bladder** receives the urine from the kidneys by the ureters. In the infant it is almost an abdominal organ, but in the adult it lies in the pelvis behind the symphysis pubis. When, however, it becomes markedly distended owing to obstruction to the outflow of urine, it forms a rounded swelling in the hypogastric region of the abdomen. The bladder is a muscular bag lined by a mucous membrane, and connected with the exterior by a channel, the urethra. It is only partly covered by the peritoneum of the pelvis. Its normal capacity is about one pint, and it varies slightly in shape in the two sexes. In the male its base is surrounded by an important organ, the prostate gland. Inflammation of the bladder is called cystitis.

The **urethra** (Fig. 13) is the canal by which the urine passes from the bladder to the exterior of the body. Near the base of the bladder it is surrounded by a voluntary muscle, the constrictor urethræ, which gives control over the act of micturition. The male and the female urethra are very different from each other. The female urethra is a short tube ¾ of an inch in length, embedded in the anterior wall of the vagina. The external orifice (meatus urinarius) opens between the nymphæ on a small papilla just above the opening of the vagina. In the male the urethra is about 8 inches in length and runs the whole length of the penis, and into it open various ducts connected with the male reproductive organs. The canal is lined with a mucous membrane, inflammation of which is termed urethritis.

From the above it will be seen that the urine is secreted from the blood by the cells of the kidney tubules, passes into the pelvis of the kidney, then down the ureters into the urinary bladder. The act of micturition consists of contracting the muscular wall of the bladder and at the same time relaxing the sphincter muscle (the constrictor urethræ). This is a voluntary muscle under the control of the will, and micturition can be stopped by its contraction.

THE GENITAL ORGANS

I.—MALE ORGANS OF GENERATION

The **testes** are the essential organs of the male. They are two in number, and are situated in the scrotum, in which they are suspended by the *spermatic cord*. Originally, like the ovaries, they were situated inside the abdomen, but in about the eighth month of fœtal life they pierce the abdominal wall to enter the scrotum. The place where the abdominal wall is perforated is weak, and it is here that hernia is most common. Occasionally the testes do not descend into their proper position.

Each testis consists of two parts, the body and the epididymis, and to the lower end of the latter the duct of the testis or vas deferens is attached.

The testes secrete the semen, which contains the spermatozoa.

The testis is surrounded by a serous sac, the *tunica vaginalis*, which may become distended with fluid, forming a hydrocele.

The *vas deferens*, or duct of the testis, ascends in the spermatic cord and, entering the abdomen by the inguinal canal, runs down on the side of the bladder, to open into the urethra. Just before entering the urethra it gives off a pouch, the *vesicula seminalis*, in which the semen is stored.

The **prostate gland** (Fig. 13) surrounds the neck of the bladder and the beginning of the urethra. It is about the size of a horse chestnut, and is pierced by the combined ducts of the testes and vesiculæ seminales. Its function is not precisely known, but it tends to enlarge in old age, and the enlargement may obstruct the urethra, preventing the proper flow of urine from the bladder.

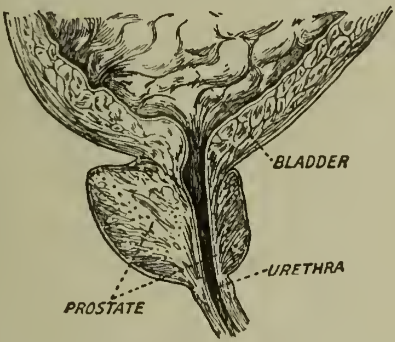

Fig. 13.—The Prostate Gland.

Cowper's glands are two small glands that open into the back part of the urethra.

The **penis** contains the urethra, along which the urine and the semen have to pass to reach the exterior by the meatus urinarius.

Covering its anterior end is a fold of skin, the prepuce, which is removed in the operation of circumcision. The body of the penis is made up of erectile tissue, that is, tissue with large venous blood-spaces in it.

The course of the semen is as follows: it is formed in the body of the testis, and passes along the epididymis to the vas, then along that duct to the vesicula seminalis, and then into the urethra, along which it passes to the exterior.

II.—FEMALE ORGANS OF GENERATION

The **external organ** of generation in the female is termed the **vulva** and is surrounded by two prominent folds, the **labia majora.** Between these folds are found the labia minora or nymphæ, the clitoris, the meatus urinarius, and the orifice of the vagina. Above them is the eminence in front of the pubes, the mons Veneris; and posteriorly is a small transverse fold of mucous membrane which is called the fourchette.

The **labia minora,** or nymphæ, are two folds of mucous membrane extending for 1½ inches downwards and outwards from the clitoris. They lose themselves below in the labia majora.

The **clitoris** lies between the anterior ends of the nymphæ, which partially surround it. It corresponds to the penis of the male. Below it is the meatus urinarius, the opening of the urethra (p. 218).

Below the meatus is the orifice of the vagina, which is partially closed in the virgin by the **hymen,** a fold of mucous membrane. After rupture of the hymen, small elevations, the carunculæ myrtiformes, alone remain.

Lying on each side of the orifice of the vagina are two glands whose ducts open in the nymphæ just externally to the hymen. They are called the glands of Bartholin, and not unfrequently become inflamed and suppurate.

The **internal organs** of generation of the female are the vagina, the uterus and its appendages, and the ovaries.

The **vagina** is a dilatable canal lined by a mucous membrane, extending from the vulva to the uterus. It is about 2½ inches long, and the upper end widens to receive the neck of the uterus, which can be seen and felt on examination.

In front of the vagina is the base of the bladder, and behind is the rectum (p. 215). A muscle, known as the sphincter vaginæ, closes its lower end.

The **uterus,** or womb, is a pear-shaped body, flattened from before backwards, placed in the pelvis between the bladder in front and the rectum behind. From the latter it is separated by a pouch of peritoneum, called the pouch of Douglas (p. 209).

The uterus is covered by peritoneum behind, above, and in front, and the membrane is reflected off the sides to the pelvis to form the broad ligament. The uterus is a muscular organ, and is about 3 inches

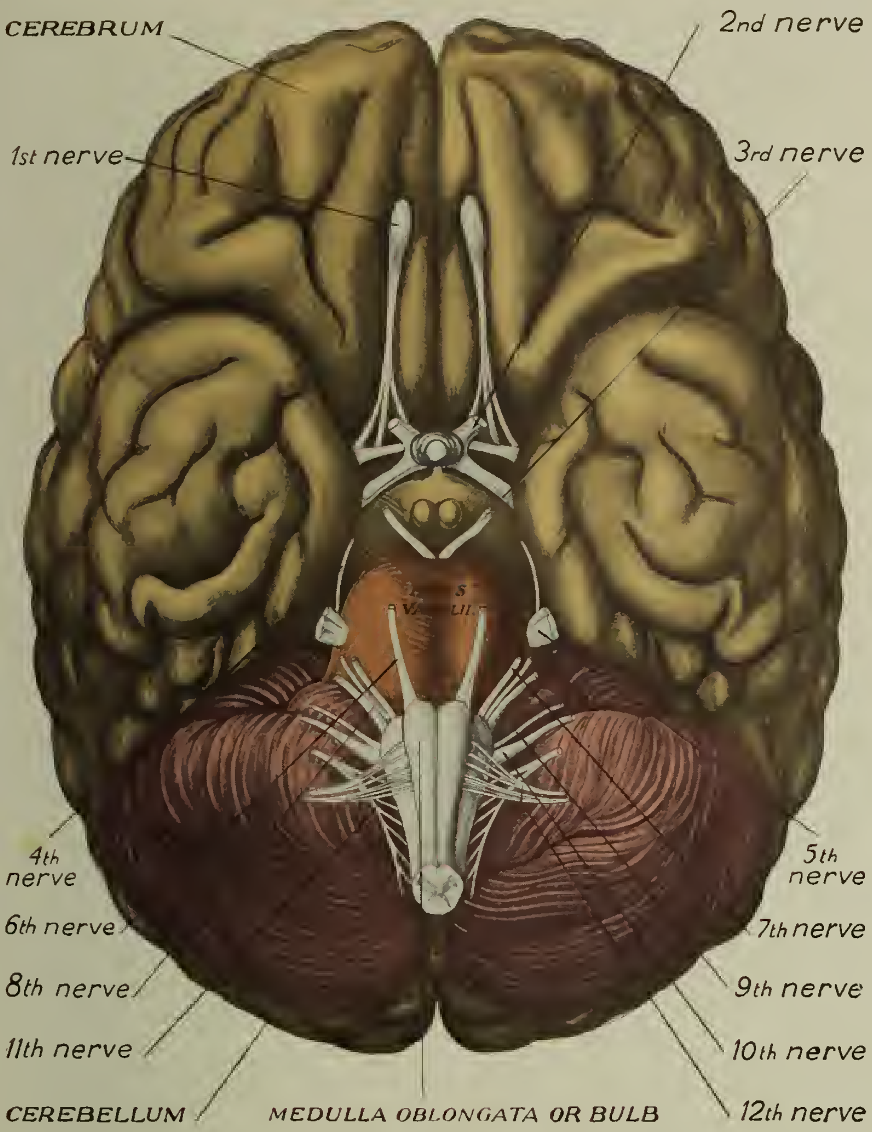

PLATE XX—THE UNDER SURFACE OF THE BRAIN.

long, 2 inches broad, and 1 inch thick. It is divided into a cervix, or neck, and a body.

The *cervix* is surrounded below by the upper part of the vagina, into which it projects, and has an orifice which is known as the external os of the uterus. Normally the os is filled with a plug of mucus.

The *body* is the part above the cervix, and contains a cavity in which the fœtus develops. It is lined by a mucous membrane, from which bleeding occurs during menstruation. The cavity of the uterus is triangular in shape, the superior angles leading into the Fallopian tubes, and opening into the canal of the cervix through the internal os of the uterus.

Projecting from the upper part of the body of the uterus on each side are the **Fallopian tubes**, two in number, each measuring about 4 inches in length. They contain a cavity continuous with that of the uterus, and terminate in finger-like processes, the fimbriated extremity, which embrace the ovary at certain times. In the centre of the fimbriated extremity is a small opening, the ostium abdominale. The ovum has to pass along one of the tubes to reach the uterus.

The **ovaries** are the essential organs of the female, and contain the ovum from which the fœtus is developed. They are two in number, and are of flattened ovoid form, about an inch and a half in length. They are attached to the broad ligament and the uterus, and lie in the pelvis. The fimbriated extremity of the Fallopian tube lies quite close to them.

The ova are formed in the ovary, and are periodically discharged, entering the ostium abdominale of the Fallopian tubes. They pass down the tube, enter the uterus, and either develop into a child (fœtus) or are discharged externally. They are only $\frac{1}{240}$ to $\frac{1}{120}$ of an inch in diameter.

The **mammæ**, or breasts, are accessory glands of the generative system, and secrete the milk. They exist in the male as well as in the female, but in the former are in a rudimentary state, although sometimes they become functional.

The breasts vary in size at the different periods of life, and become enlarged during pregnancy. In old age they atrophy. Just below the centre of the breast is a small conical prominence, the nipple, which becomes darker in colour during pregnancy, and on to which the ducts of the gland open. The number of ducts varies from 15 to 20. In the male the nipples are rudimentary.

The breast of the female is one of the most common organs to be attacked with cancer.

IX.—THE NERVOUS SYSTEM (PLATES XX., XXI., XXII.)

I.—THE CENTRAL NERVOUS SYSTEM

The central nervous system consists of the brain and the spinal cord, which give off nerves going to every tissue of the body.

These nerves can be divided into two groups—*afferent* or *sensory* nerves, those carrying sensation to the brain; and *efferent* or *motor*, those which supply the motive force to the muscles. Besides these there is a third class of nerves which supply the viscera; this is known as the sympathetic system, as distinct from the central nervous system with which we are now concerned.

The brain is enclosed in the skull so that it is protected from slight injuries which would seriously damage its soft texture. Surrounding it inside the skull are three membranes, known as the **meninges**.

The meninges consist of the dura mater, the arachnoid mater, and the pia mater.

The **dura mater** is a tough, fibrous membrane, closely attached to the bones of the skull and sending in processes between the different parts of the brain, which it supports. It is supplied by arteries which, if wounded, bleed between the dura and the skull, so that the brain is compressed.

The **arachnoid mater** is a thin, delicate membrane between the dura and the pia mater. At the base of the brain there is a large gap between the arachnoid and pia mater, which is filled with the *cerebro-spinal fluid*, so that the brain rests on a water-pillow which protects it from being jarred.

The **pia mater** is a thin membrane closely applied to the brain itself and following all its turns. It carries the blood-vessels and lymphatics of the brain, and even penetrates into the interior.

Inflammation of these coverings of the brain is known as meningitis.

The **brain** (Plate XX.).—This organ consists of the cerebrum the pons Varolii, the cerebellum, and the medulla oblongata or bulb.

The **cerebrum** is a large soft mass of tissue partially divided into

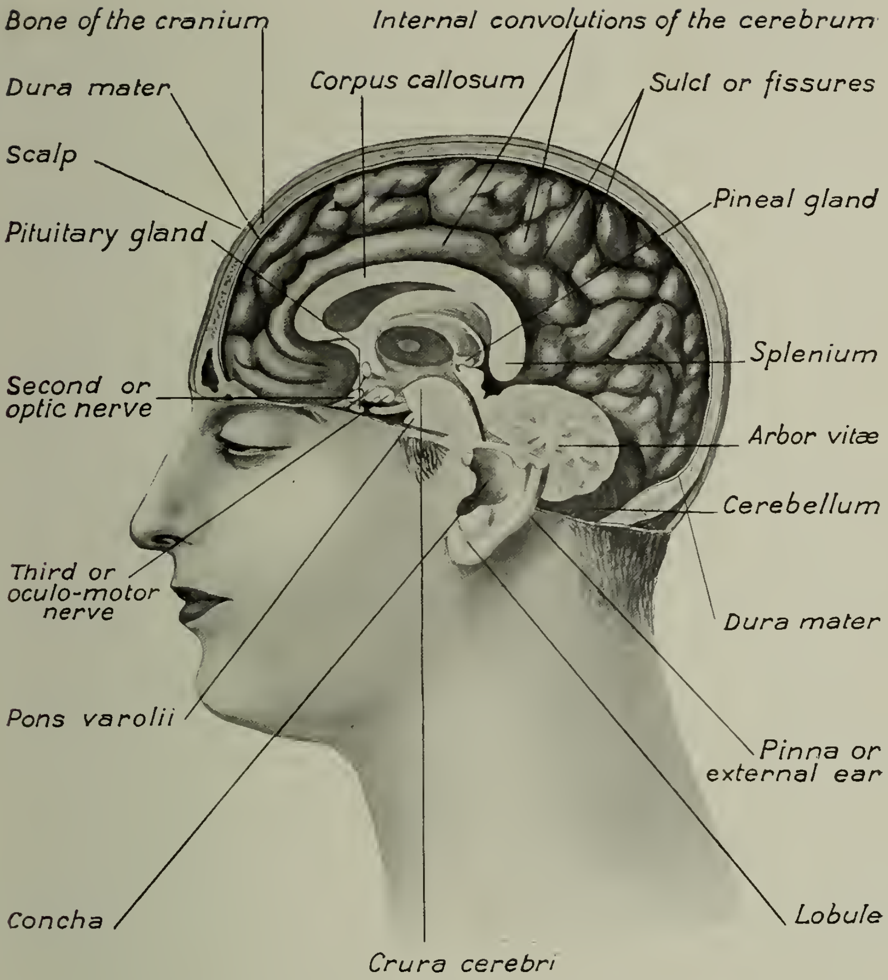

PLATE XXI.—SECTION OF SKULL AND BRAIN.

two hemispheres, a right and a left, by a deep depression running down the centre, but the two halves are joined at the base. It is made up of numerous nerve cells and nerve fibres.

The nerve cells are congregated chiefly on the surface of the brain and at the base. They form a thin layer of brain substance which is darker in colour (*grey matter*) than the nerve fibres (*white matter*) over the whole of the cerebrum and cerebellum. This layer is known as the *cortex* of the brain. At the base of the brain the grey matter forms several large masses of brain substance known as the basal ganglia.

The surface of the brain is not smooth, but thrown into numerous folds or convolutions with depressions between them which are known as sulci or fissures.

One very constant sulcus is known as the *fissure of Rolando;* round it are the nerve cells that preside over the actions of the muscles.

In the centre of the brain are small spaces filled with cerebro-spinal fluid, which are called the ventricles of the brain. These become enormously dilated with fluid in the condition known as hydrocephalus.

The **pons** (bridge) **Varolii** is a large band of fibres connecting the parts of the brain together.

The **cerebellum** is about the size of an orange, and is situated behind and below the cerebrum. It has a cortex of grey matter and a central portion of white matter, and its surface is thrown into convolutions like the cerebrum. Its exact function is not known.

The **medulla oblongata** or **bulb** is the part of the brain that connects the cerebrum and cerebellum with the spinal cord. It contains the nerve cells which preside over the circulation and the respiration, so that any serious injury to the bulb is instantly fatal.

In judicial hanging the medulla is damaged by the dislocation of the neck that occurs, and death is instantaneous.

The **cranial nerves.**—Twelve pairs of nerves are given off from the brain, and run out through holes (foramina) in the base of the skull to the various structures which they supply. They are very liable to be injured in accidents to the base of the skull. They are :—

First nerve.—The olfactory, to supply the upper part of the nose with the sense of smell.

Second nerve.—The optic, the special nerve of sight (p. 226).

Third nerve.—To some of the muscles of the eyeball.

Fourth nerve.—To the superior oblique muscle of the eyeball.

Fifth nerve.—This has three parts, and supplies the face, nose, mouth, part of the tongue, the teeth, the eyeball, and part of the head and neck with sensation. It is also the motor nerve to the muscles of mastication.

Sixth nerve.—To the external rectus muscle of the eyeball.

Seventh nerve.—To the muscles of the face which are used in expression. And by its posterior auricular branch to the muscles of the ear.

Eighth nerve.—The nerve of the special senses of hearing and equilibration (p. 229).

Ninth nerve.—Mainly supplies the sense of taste.

Tenth nerve.—This is called the vagus (wandering) nerve because of its wandering course. It supplies the pharynx, the larynx (speech), the heart, the lungs, the œsophagus, and the stomach.

Eleventh nerve.—Helps the vagus, and supplies some muscles of the neck.

Twelfth nerve.—This supplies the muscles of the tongue.

Although the fifth cranial nerve, with its branches, the supra-orbital, the mandibular, the superior maxillary, and the auriculo-temporal nerves, is the chief sensory supply of the head, face, and neck, it is helped by several of the cervical spinal nerves. This very abundant nerve supply explains the sensitiveness of the head and face.

The spinal cord (Plate XXII.).—Like the brain, the spinal cord is surrounded by three membranes, which are continuous with those covering the brain, and which receive the same names—the dura mater, the arachnoid mater, the pia mater.

The spinal cord occupies the spinal canal in the vertebral column, starting at the medulla, but in the adult it only fills the upper two-thirds of the canal, stopping at the lower end of the first lumbar vertebra, where it terminates in a slender filament.

Surrounding the cord between the arachnoid mater and the dura mater is a quantity of **cerebro-spinal fluid**, which communicates with the cerebro-spinal fluid at the base of the brain and in the ventricles. This allows the spine to move freely without injury. If a hollow needle is thrust into the spinal canal between the third and fourth lumbar vertebræ the cerebro-spinal fluid will run out, and the ventricles of the brain can be emptied in this way.

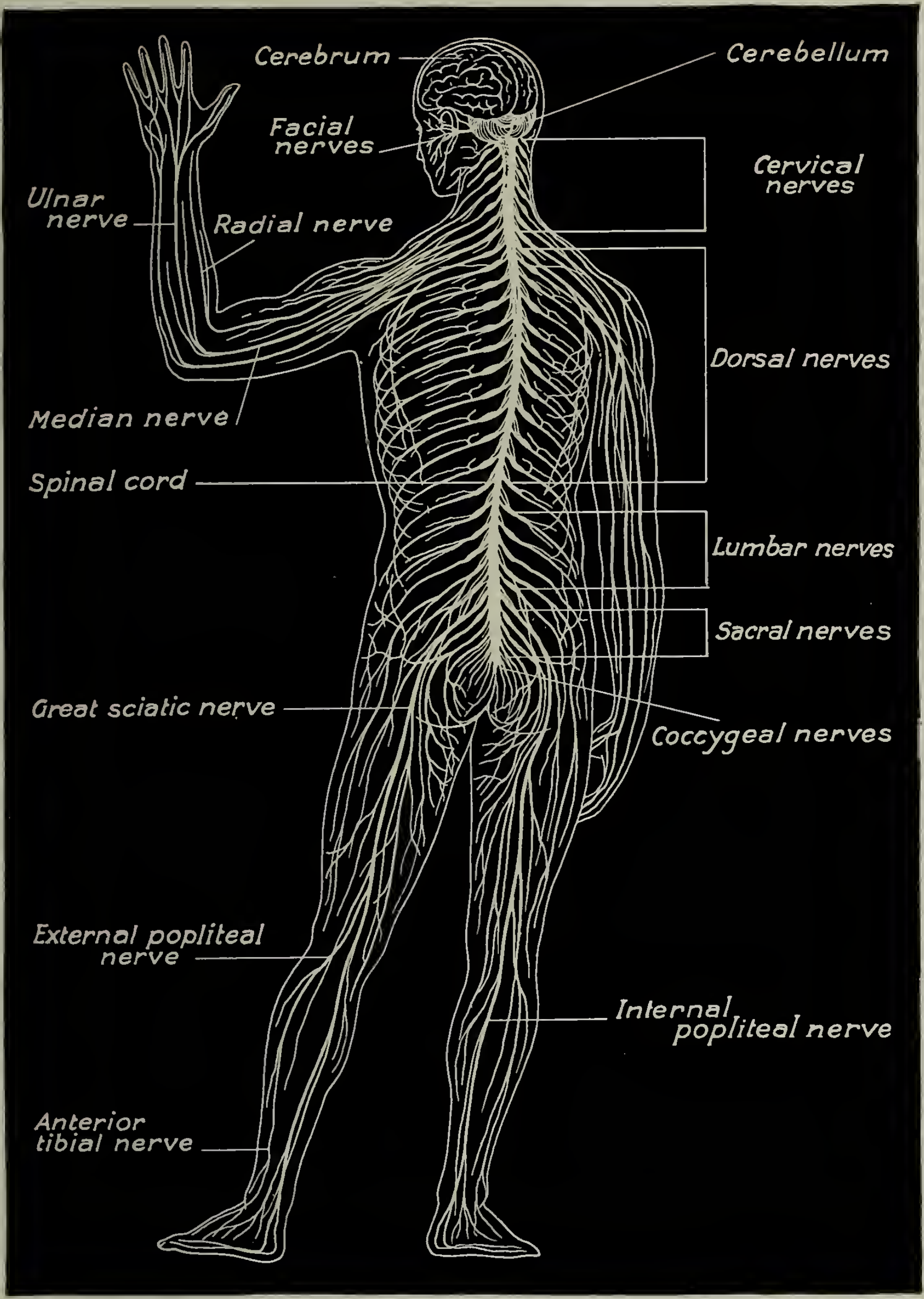

PLATE XXII.—SPINAL CORD AND SPINAL NERVES.

The spinal cord is made up of a central column of grey matter (nerve cells) and surrounding white columns (nerve fibres). A canal runs down the centre of the cord.

From the spinal cord arise 31 pairs of **spinal nerves** (Plate XXII.), viz., 8 cervical, 12 dorsal, 5 lumbar, 5 sacral, and 1 coccygeal. Each pair of nerves comes out between two vertebræ through an opening—the intervertebral foramen.

The nerves arise from the spinal cord by an anterior and a posterior root. The anterior root is motor, and impulses pass outward along it to the muscles. The posterior root, which has a ganglion* developed in it, is sensory, and impulses go up it to the spinal cord and brain. The two roots join together to form a mixed spinal nerve.

After the nerve has left the spinal canal it divides into two chief branches, the anterior going to the front of the body, and the posterior going to the back.

In the cervical, lumbar, and sacral regions many of the anterior branches join together to form plexuses. From these plexuses branches come off, mainly to supply the extremities. Thus the upper extremity is supplied by the brachial plexus and partly by the cervical plexus, and the lower extremity by the lumbar and sacral plexuses.

Nerve plexuses are also formed by the posterior branches, but they are not so important as those already mentioned.

In the dorsal region of the body there are no plexuses, but the nerves run round the body, supplying the muscles and skin in their course.

II.—THE SYMPATHETIC NERVOUS SYSTEM

The sympathetic nervous system is derived from the central nervous system, but presents several peculiarities. Its nerves supply the organs of the body, the uterus, intestines, lungs, heart, etc., and all the involuntary muscles, including the muscles of the blood-vessels which allow those tubes to dilate or contract according as the various parts of the body demand more or less blood supply.

The sympathetic system consists of—(1) Two nerve cords running down one on each side of the bodies of the vertebræ; on them nerve ganglia are situated at intervals. (2) Plexuses of nerves which give off branches to the organs and blood-vessels. (3) Nerve ganglia in connection with one of the cranial nerves.

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* A ganglion is a collection of nerve cells from which nerves arise.

The nerves of the sympathetic system differ from those of the central nervous system in being grey instead of white. This difference is due to a fatty sheath which is found in the cranial and spinal nerves, and which is absent from those of the sympathetic system.

X.—ORGANS OF SPECIAL SENSE

I.—THE EYE AND ITS APPENDAGES (PLATE XXIII.)

The **conjunctiva** is a thin, smooth membrane which covers the under surface of the eyelids, and is reflected over the globe of the eye so that it forms a closed sac when the lids are shut. It is kept constantly moist by the tears.

The tears are secreted by the **lachrymal gland** (Fig. 14), a small gland situated in the orbit on the outer and upper aspect of the globe. It has ducts which open into the conjunctival sac on the under surface of the upper lid. The tears then sweep across the eye and are collected at the inner side into two small ducts—the **canaliculi**, which open one on the upper and the other on the lower lid. The canaliculi open into a sac at the side of the root of the nose, and then pass down the **nasal duct** to open into the lower compartment of the nose. When the secretion of the tears is excessive, or if the duct is blocked, they escape over the lower lid and run down the face.

The **eyeball** is spherical in shape, and contained within the orbit. It has three coats, the sclerotic, the choroid, and the retina.

The **sclerotic** is a thick, white, fibrous coat which can be seen between the lids as the " white " of the eye. It is pierced posteriorly by the nerve of sight, the optic or second cranial nerve. In front the sclerotic coat has an extra curve, and becomes translucent to allow the light to enter the eye. The translucent part is called the *cornea*, and has no blood-vessels.

The **choroid coat** is inside the sclerotic, and contains the blood-vessels of the eye. It is deeply pigmented so as to turn the eye into a dark chamber. It also is pierced posteriorly by the optic nerve.

The **retina** is the expanded termination of the optic nerve, and is the sense-organ of sight.

The place where the optic nerve pierces the choroid is known as the optic disc, and is the *blind spot* of the eye, whilst the place of most

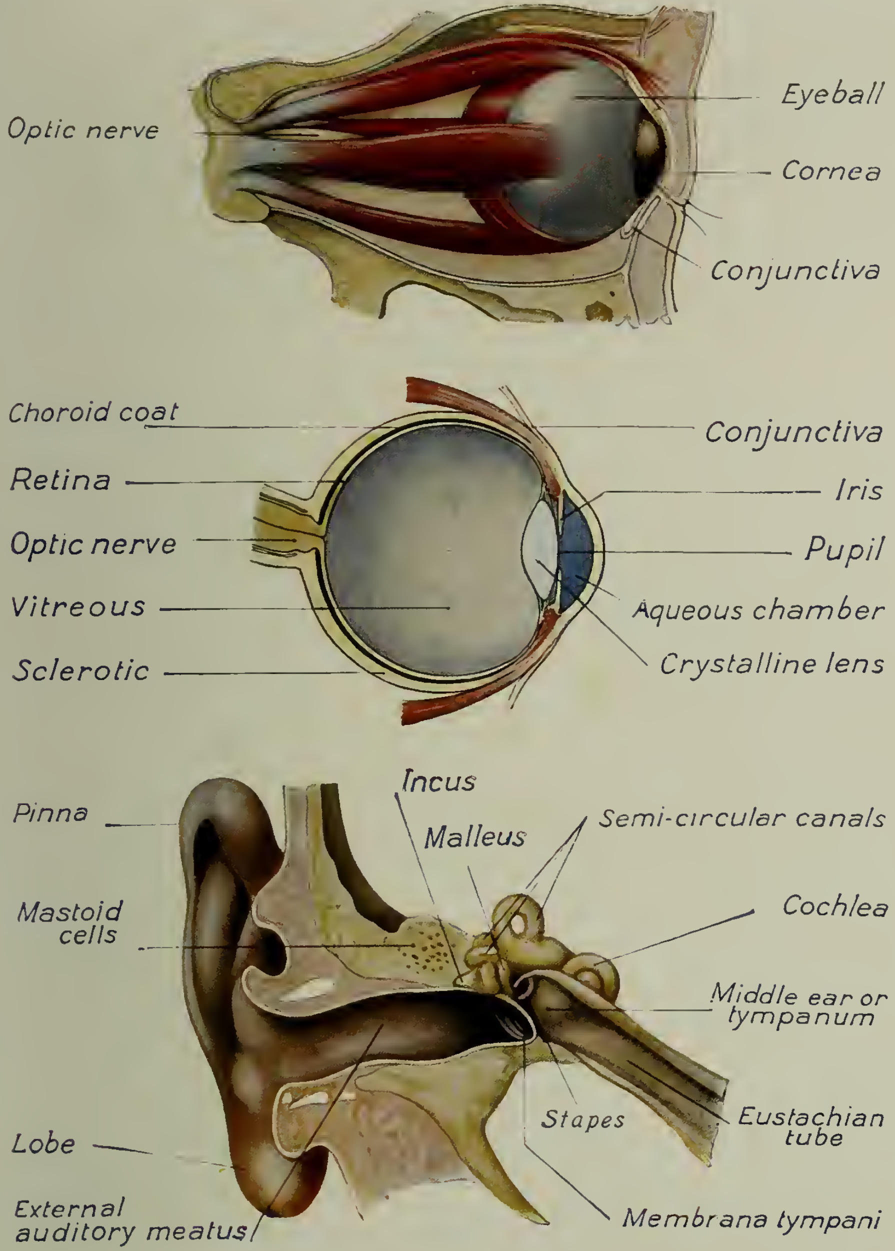

PLATE XXIII.—THE EYE AND THE EAR.

acute vision, the *yellow spot* (macula lutea), is placed on the temporal side of the disc.

An artery (the central artery) supplies the retina.

These structures can all be seen on examining the eye with the ophthalmoscope.

Immediately behind the cornea is a space termed the **aqueous chamber,** containing a thin, watery fluid. This chamber is partially divided into two by a muscular curtain with an aperture in the middle of it. This curtain is called the **iris,** and is pigmented, giving the various colours to the eye. The hole in the centre is the **pupil,** through which the rays of light go to the retina. The muscle, by its contraction and dilatation, alters the size of the pupil, as it is necessary for more or less light to be admitted.

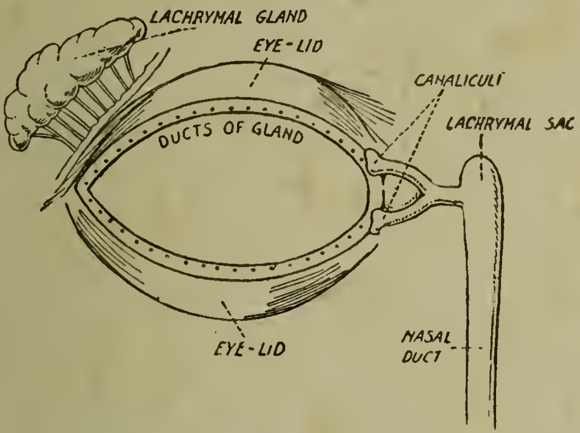

Fig. 14.—Lachrymal Gland and Ducts.

Behind the iris lies the **crystalline lens,** which is about one-third of an inch in diameter and one-fifth of an inch thick. It is enclosed in a capsule, and brings the rays of light to a focus on the retina. A muscle, the ciliary muscle, acts on the capsule of the lens so that the lens can be made flatter or more rounded, and in this way allows of a clear view of both distant and near objects. Loss of this *power of accommodation* is the cause of the failure of sight for near objects which comes with advancing years.

Behind the lens is a chamber containing a clear jelly-like substance, the **vitreous**. It supports the retina behind, and is hollowed out in front to receive the lens.

The cornea, the aqueous humour, the lens, and the vitreous are known as the media of the eye, and it is essential for clear vision that they should be quite transparent. In the condition known as cataract the lens becomes milky-white, and vision is lost.

The path of the rays of light entering the eye is through the cornea, across the anterior chamber, and through the pupil. They then traverse the lens and pass through the vitreous to the retina.

The eyeball is moved by six muscles which arise from the bony wall of the orbit posteriorly and are inserted into the sclerotic coat behind the conjunctiva. They are supplied by the 3rd, 4th, and 6th cranial nerves. Paralysis or over-action of one of these muscles will cause a squint, and operations are performed on them to remedy this defect.

II.—THE EAR

The ear (Plate XXIII.) is divided into three parts, the external, the middle, and the internal ear.

The **external ear** consists of two parts, the pinna and the external auditory meatus.

The *pinna* is the part popularly known as "the ear," and its function is to collect the waves of sound. It is made of cartilage, and is capable of being moved, especially in animals, by special muscles.

The *external auditory meatus* is found in the hollow of the pinna. It is a canal 1¼ inches long, partly made of cartilage and partly of bone. Its direction is forwards and inwards, and its floor is slightly arched. At the inner extremity it is closed by the drum (membrana tympani), and the walls of the canal contain numerous glands which secrete wax. If this wax secretion is excessive it will form a large plug which will close the canal and cause partial deafness. It is this part of the ear which is cleared by syringing, the membrana tympani completely closing the inner end.

The *drum* (membrana tympani) is a thin membrane which separates the external and middle ears. It vibrates when sound waves reach it down the meatus, but it is not absolutely essential for hearing.

The **middle ear** or **tympanum** is a small cavity lying in the temporal bone. It is shut off from the external ear by the tympanic membrane.

The cavity of the middle ear communicates with the naso-pharynx (p. 211) by means of the Eustachian tube, and it contains three small bones, the *malleus* (hammer), the *incus* (anvil), and the *stapes* (stirrup). These small bones (ossicles) are articulated together, and two small muscles move them.

Leading out of the middle ear is a small cavity about the size of a pea, the *mastoid antrum*, which is surrounded by a number of small spaces in the bone, the *mastoid cells*. It is the middle ear which is inflamed and suppurating in the great majority of cases of aural discharge, the pus coming through a hole in the tympanic membrane. Inflammation can also readily spread to the mastoid antrum, a condition known as mastoiditis.

Running in the wall of the middle ear is the *facial nerve*, which controls all the muscles of facial expression. In disease of the middle ear it is frequently paralysed, or it may be damaged in operations on the mastoid antrum.

The **internal ear** contains the endings of the auditory nerve, and is the only part of the ear that is absolutely essential to hearing. It consists of two parts, the *cochlea*, which contains the organ of hearing (the organ of Corti), and the *semicircular canals*, whose function is to help to maintain the equilibrium. It lies deep in the substance of the temporal bone, in which there is a bony cavity or labyrinth that contains the membranous internal ear. The auditory nerve, which supplies the organ of hearing, is the eighth cranial nerve.

CHAPTER XII

ELEMENTARY PHYSIOLOGY

By Wm. Cecil Bosanquet, M.A. M.D. (Oxon), F.R.C.P.

Introductory—Digestion and Nutrition—Excretion—Respiration—The Blood and the Circulation—The Internal Secretions—Muscle—The Nervous System—Reproduction.

I.—INTRODUCTORY

Physiology (Greek, *physis*, nature) is the branch of science which deals with the activities of living beings, that is to say, with such processes as digestion, breathing, movement, and feeling. Inasmuch as the properties of different parts of the body are dependent on their minute structure, under the head of physiology is generally included microscopical anatomy or histology.

Before describing in detail what is known of the processes of life in the higher animals, such as dogs, apes, or man, it is convenient to consider briefly the characteristics of living matter as they are exhibited in one of the simplest forms in which it exists. As an example we may take a minute animal called an amœba, which may be found sometimes in stagnant water—a living speck just visible with the naked eye, which the microscope shows to consist of a nearly transparent jelly-like substance (protoplasm) containing within it at one point a little solid body called the nucleus (*see* Fig. 15). When it is placed upon a glass slide under the microscope, this tiny creature may appear first as a round ball; but if it be watched for some time, it will be seen to change its shape, throwing out a projection of its protoplasm in some direction. Gradually more and more of the soft body-substance flows into this projecting portion, and in this way the whole animal moves and crawls across the field of the microscope. Sometimes, in course of moving, the amœba comes into contact with a particle of some substance suitable to serve it as food; then it proceeds to flow round and engulf the particle, thus taking it into its body. The particle may then be seen lying within the amœba, contained in a sort of bubble or minute cavity (vacuole), within which it is gradually digested; the soluble portions being used as food, that is to say, converted into the living protoplasm of the amœba, while any insoluble remnants are left unaltered and are ultimately cast out of the animal's body, being left behind as it crawls along.

If an amœba, moving in the field of the microscope, be touched with the tip of a needle or irritated by the passage of a current of electricity through the water in which it is crawling, it assumes a globular shape, but after a time it begins to move about once more.

If a living amœba be put into water which has been boiled and allowed to cool, it will die; whereas it will live for some time in pond-water—the difference between the two waters being that the latter contains a small quantity of air dissolved in it, whereas this has been driven off from the boiled water. It is thus shown that the amœba needs air to breathe, and gets this from the water, just as fish do.

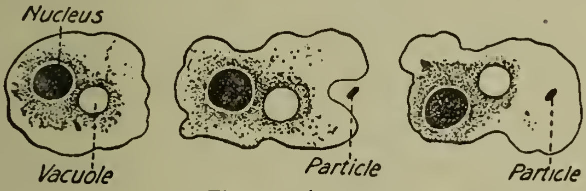

Fig. 15.—AMŒBA.

When an amœba by taking in food has grown in size to a certain degree, it proceeds to divide into two equal halves, the nucleus first splitting into two portions, and the protoplasm then dividing, so that each part contains one of the halves of the nucleus. Each of the resulting fragments then moves off as a separate individual—the original animal has divided into two complete amœbas.

We see then that this minute living creature has the properties of converting foreign material (food) into its own substance, of casting out remnants of food which cannot be absorbed, of changing its shape in response to external irritation, and of reproducing its kind so that the species is perpetuated. It also needs for its nourishment water and air.

Exactly the same properties are exhibited by the higher forms of life, but necessarily in more complicated ways owing to the complexity of their structure. An amœba, consisting of a nucleus and a mass of surrounding protoplasm, represents the simplest form of life, and is spoken of as a single **cell**. The higher animals (and also plants) are built up of innumerable cells, which are readily distinguishable under the microscope; but in order to carry on the different duties (functions) needful for the life of the animal, the cells become modified in different ways, some specialising, if we may so say, in power of movement, others in power of digestion, others as a protective layer to act as an outer covering. Thus are formed muscle-cells, gland-cells, and skin-cells, etc.

Now, in the minute body of a single cell the food that is absorbed is readily distributed to every part, but in a complex organism consisting of innumerable cells special apparatus has to be provided in order to distribute the nutriment to all the cells. Hence arises the need for special blood-vessels and lymphatic channels, by which the food and air are distributed, just as water is conveyed to all parts of a house by a system of pipes.

Further, while in a single cell irritation (stimulus) from without readily excites contraction of the whole animal, in a complex animal means must be provided for conveying stimuli from the surface to the cells which effect movement, and this conveyance is brought about by the nerves, which carry stimuli first from the skin to the central nervous system, and then convey the resulting impulses from this to the muscles.

Although it is possible to divide up for descriptive purposes the various functions of digestion, excretion, circulation, respiration, etc., it will be seen that they are all dependent one upon another, and each is influenced by the others. Thus the digestive organs, when at work, need an increased flow of blood, and this is brought about through the nervous system, while increased muscular work is not only accompanied by increased blood-flow through the muscles, and by more rapid respiration to supply additional oxygen, but produces an increased amount of waste products which have to be eliminated by the excretory organs. Every part of the body is affected by the condition of every other part; we are dealing with a single living animal, not with a mere aggregate of different living cells.

A useful analogy has been drawn between the living body and a steam-engine at work. Thus the food absorbed represents the fuel supplied to the engine. In the body the food unites with oxygen derived from the air, just as coal unites with oxygen in burning, and the result is the same in both cases, namely, the formation of a gas called carbon dioxide (carbonic acid), and the production of work and heat. The cinders left behind by the engine-fire correspond with the fæcal matter excreted by the living animal. It is possible to calculate the greatest amount of heat and work that can be produced by oxidation (burning) of a given quantity of food or fuel; and it is found that the living body is more economical—gets better value out of its fuel—than any engine which can be constructed.

II.—DIGESTION AND NUTRITION

By **digestion** is meant the process by which the living body acts upon food-materials, so as to render them soluble and ready to be absorbed into its system; the subsequent process by which soluble products are taken up by the cells of the body, and converted by them into living protoplasm, is known as **assimilation**. Different kinds of food are digested in different parts of the alimentary tract (mouth, stomach, and intestines); hence it is necessary first of all to have some knowledge of the materials which are essential for a properly adjusted diet. Common knowledge would indicate this as consisting of meat, bread, vegetables, sugar, butter, water, and salt. The classification used in physiology is as follows :—

1. **Proteids** (*protos*, first). These are the constituents of food which represent the dead protoplasm of animals and plants. They contain carbon, hydrogen, oxygen, and nitrogen (C,H,O,N). The most obvious example is lean meat, which represents the muscle of an animal; liver and sweetbread, which represent gland-cells, are also proteid in character. The special quality of proteid foods is that they contain the element *nitrogen*, a most important constituent of living matter.

2. **Carbohydrates.**—This name is applied to starchy materials and sugars. They contain carbon, hydrogen, and oxygen (C,H,O), the two last being in the same proportions as in water (H_2O). Examples are seen in wheaten flour and potato, both of which consist almost entirely of starch (which is stored up by plants as a reserve of food); in ordinary sugar derived from sugar-cane or beet-root; and in the so-called grape-sugar which exists in almost all fruits.

3. **Fats.**—The fat of meat, butter, and oils such as olive oil come under this heading. Fats and oils have great heating powers when burnt, and are thus very important for maintaining the heat of the body. They contain carbon, hydrogen, and oxygen (C,H,O).

4. **Water.**

5. **Salts** of various kinds, of which common table-salt (sodium chloride) is the most important.

Oral digestion.—Food is prepared for absorption by the action of chemical substances which are formed in the alimentary canal. In order that these may readily act upon the food, it is necessary for it to be broken up into very fine particles, and thoroughly mixed with the digestive agent. The first process needful for good digestion is therefore thorough chewing—*mastication*—of the food in the mouth, during which it is ground up fine by the action of the molar or grinding teeth, situated at the back of the jaws. The front or incisor teeth are adapted for biting off portions of food, and should not be used for subsequent chewing. The teeth of different species of animals differ according to the kind of food on which they live; thus flesh-eating animals, such as dogs and cats, have sharp-pointed teeth, both back and front, with which to tear up flesh; this is then swallowed without mastication. On the other hand, horses and cattle which live upon grass are well furnished with flat grinding teeth, and submit their food to prolonged chewing, cattle even bringing it back again into the mouth after it has been swallowed, for further chewing (rumination, or chewing the cud).

While it is undergoing mastication the food is moistened with saliva, and the pulp thus formed is passed backwards and forwards between the teeth by the action of the tongue on the inside, and of the cheek on the outside. In cases of facial paralysis, in which the muscle of the cheek does not act, the food accumulates between the teeth and the cheek, and the patient has to press his cheek with his hand in order to get rid of it.

Saliva is an alkaline watery fluid secreted by certain glands (salivary glands), of which there are three on each side of the mouth—the sublingual glands, lying on each side of the middle line just under the chin; the submaxillary, a little further back, beneath the angle of the jaw; and the parotid, situated just beneath the ears, and sending a prolongation across the cheek (Fig. 16). The ducts of these last open on the inner side of the cheeks, opposite the second upper molar teeth; those of the others on the floor of the mouth, under the tongue. Besides moistening the food, and thus rendering it easy to chew and swallow, the saliva contains a chemical substance which acts upon starchy food and converts it into sugar. This substance is a ferment called *ptyalin* (*ptyalos*, saliva). A ferment is a substance which is able to act chemically upon some other material, the nature of which it changes without itself undergoing any alteration. Ferments are readily destroyed by heat; their exact nature is unknown.

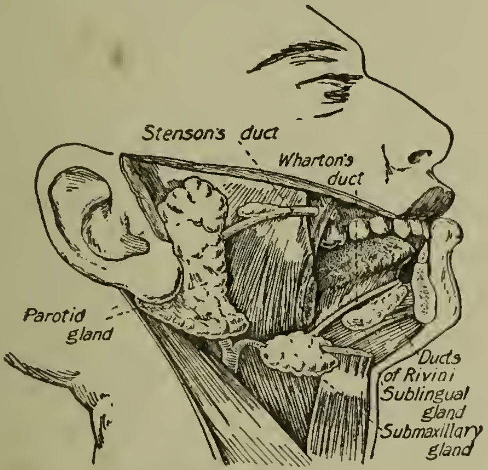

Fig. 16.—The Salivary Glands.

The action of ptyalin upon starch may be shown as follows: a little starch-paste is placed in each of two test-tubes, and to one of them a little saliva is added; they are then both kept in a warm chamber for an hour. At the end of that time the contents of the tubes are tested; to one half of each is added a drop of solution of iodine, and it is found that, whereas in the tube containing only starch-paste a rich blue colour develops, none appears in that to which the saliva was added. On the other hand, if the remaining quantities are each boiled with a small quantity of Fehling's solution (a test for sugar), the blue colour of this solution remains unchanged in the first tube, but a brick-red precipitate forms in the second, which contains the saliva, showing that sugar is present; the starch, which gives a blue colour with iodine, has disappeared, having been changed by the saliva into sugar. Sugar is a soluble substance readily absorbed, whereas starch is insoluble, merely swelling up in water to form a gummy fluid ; the change brought about by the saliva is therefore typical of digestion.

In young infants the salivary glands are undeveloped, an indication that they should not be given starchy food, such as biscuits or bread, which they cannot properly digest. The importance of proper mastication of food is shown by the fact that many cases of obstinate indigestion are cured by provision of a set of false teeth.

Deglutition.—When the food has been thoroughly chewed and mixed with saliva, it is thrust backwards by the tongue into the pharynx (Fig. 6, p. 204), and is then grasped by the muscles forming the walls of this cavity, and thrust downwards into the œsophagus or gullet. Not only the œsophagus, but the nose and the trachea, or windpipe, open into this space, and special arrangements are therefore necessary to prevent the food, especially fluid food, from passing into either of these passages. Entrance of food into the nose is prevented by the action of the soft palate, which is drawn backwards and upwards in the act of swallowing, till it touches the posterior wall of the pharynx, thus acting as a valve to shut off the cavity of the nose. (In cases of diphtheritic paralysis, when the palate is paralysed, fluids run out of the nose when the child attempts to swallow). The larynx is similarly guarded, the posterior part of the tongue projecting over it, and the epiglottis also directly protecting its orifice by acting as a valvular covering. The food when it enters the œsophagus is propelled downwards by the muscular action of this tube, not merely by its own weight, as is shown by the familiar feat of the acrobat who drinks a glass of water while standing on his hands, and by the facility with which a horse drinks holding its head lower than its body.

The stomach.—From the œsophagus the food next reaches the stomach, which forms a receptacle capable of holding the whole quantity of food taken at a meal. The shape and size of the stomach have been already described on p. 212. Its walls are formed, as indeed are the walls of the whole alimentary canal, of three layers—an outer smooth membrane, the peritoneum, which enables the various abdominal viscera to move without friction one against another ; a middle layer of muscle ; and an inner layer, the mucous membrane, which contains the glands whence the digestive juice is derived. The whole of the lining membrane of the stomach is covered with little tubular glands (Fig. 17), closely set together, embedded in the mucous membrane; their mouths open into the stomach. Those near to the œsophageal (cardiac) end of the stomach differ slightly from those towards the pylorus, certain special cells (oxyntic cells, from Greek *oxys*, sharp or acid) being absent in the latter position.

The *gastric juice* is a clear acid fluid, of which many pints are secreted in the course of twenty-four hours. The acidity is due to the presence of free hydrochloric acid, which is secreted only at the cardiac end of the stomach, probably by the special cells just mentioned. The main constituent of gastric juice is a ferment called *pepsin* (*pepsis*, digestion), which has the property of acting upon proteid food and breaking it up into soluble substances, called albumoses and peptones (Fig. 18). Pepsin is secreted by both ends of the stomach, and is formed by the cells lining the tubular glands. It acts only in the presence of an acid; hence the need for the hydrochloric acid formed by the special cardiac cells.

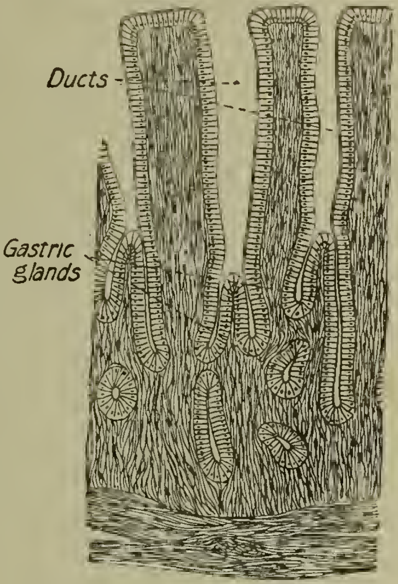

Fig. 17.—Gastric Glands and Ducts.

A solution of pepsin can be prepared by extracting fresh gastric mucous membrane with glycerine; and if some of this solution be acidified with a little dilute hydrochloric acid, an artificial gastric juice is obtained. Its action may be studied by placing in it some small fragments

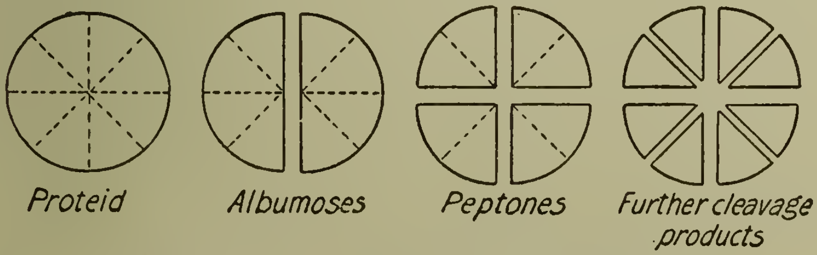

Fig. 18.—Diagram showing Breaking-up of Proteids.

of hard-boiled white-of-egg, cut into cubes, and keeping the preparation warm in an incubator. After a few hours the cubes of albumen will be seen to have lost their sharp edges, and ultimately they are entirely dissolved. If the solution thus obtained is boiled, no cloudy or flaky precipitate is formed, as would be the case with a solution of white-of-egg (raw) in water. Albumoses and peptones are not coagulated by heat. If a solution of white-of-egg be placed in a parchment bag and suspended in a vessel full of distilled water, none of the albumen will pass through the parchment into the water; but if albumoses and peptones be taken instead of the albumen, they will rapidly pass out into the water—thus showing their greater power of diffusion, which renders them easily absorbed by the intestines. If gastric digestion is prolonged, the albumoses and peptones are themselves broken up into still simpler products (Fig. 18).

Besides pepsin and hydrochloric acid, gastric juice also contains a ferment called rennet-ferment, or *rennin*, which has the property of curdling milk. Preparations of this body are used in cookery for the preparation of junket. Apparently milk is more easily digested when it is curdled.

The muscular fibres forming the middle coat of the stomach—some running longitudinally from the cardiac end to the pylorus, others transversely round the stomach—by alternate contraction and relaxation churn up the gastric contents, bringing all portions into intimate mixture with the gastric juice. While this is being done, the ring of muscle which forms the pylorus or entrance to the duodenum remains tightly contracted, preventing any of the *chyme* (as the acid fluid contents of the stomach are called) from passing into the duodenum. When, however, the food is sufficiently digested, the pylorus relaxes and the muscular movement of the stomach-walls forces the food on into the intestine.

The muscular movements of the stomach are controlled by the nervous system; the secretion of gastric juice is similarly influenced. Thus the mere sight or thought of food will cause a flow of gastric juice to occur; the introduction of food, especially highly flavoured substances, into the mouth causes a further secretion, and contact of food with the mucous membrane of the stomach calls out a further supply. Hence arises the importance of appetite as an aid to digestion, and of making up food in an attractive form so as to appeal to the recipient. Very little absorption of food takes place from the stomach, but some substances such as alcohol are absorbed by its walls—a point of importance as rendering the action of this valuable stimulant more rapid.

Pancreatic digestion.—The acid chyme, when it has entered the duodenum, is brought into contact with the secretions from two separate glands, the liver and the pancreas. The liver-secretion or *bile* is a bright yellow, bitter fluid with an alkaline reaction. The yellow colour is due to the presence of special pigments formed by the liver-cells from the hæmoglobin (Vol. II., p. 14) of the blood, and these pigments reappear both in the fæces and in the urine, to both of which they give characteristic colours. The exact use of the bile in the digestive process is not certain, but it neutralises the acid of the gastric juice, and also assists in rendering fatty materials ready for absorption by the intestine.

The *pancreatic juice* is also alkaline in reaction; it contains three separate ferments, adapted to act on the three main kinds of food-stuffs. The ferment which acts on proteid food is called *trypsin*, and the action which it exerts is very similar to that of the pepsin of gastric juice, only it acts in an alkaline medium, and is more vigorous than pepsin, quickly bringing about not only the conversion of proteid into albumoses and peptones, but also those more extensive changes which were noted as taking place only after prolonged gastric digestion. The ferment which acts upon carbohydrate food is called *amylopsin* (*amylum*, starch). It acts in the same way as the ptyalin of the saliva, but much more powerfully, converting the starch-granules into soluble sugar (glucose or grape sugar).

The ferment which acts upon fats is called *steapsin* (*steär*, fat), and it has the property of breaking up fat into its component parts, glycerine and fatty acid; this process being the same as that used in the manufacture of soap, which is a compound of fatty acid with soda or potash.

The pancreatic juice thus acts upon all kinds of food, and it is probably the most important agent in the whole process of digestion. Persons have had their stomachs removed by surgical operation, and have subsequently been able to eat ordinary food without exhibiting any disturbance of digestion. But absence of pancreatic juice is usually followed by failure to digest properly either fats or meat. The secretion of pancreatic juice is less under the control of the nervous system than is that of saliva or of gastric juice. Experiments show that the contact of the acid chyme with the mucous membrane of the duodenum produces a chemical substance (*secretin*) which is absorbed by the blood, carried to the pancreas, and there causes a flow of secretion.

Certain glands situated in the wall of the small intestine secrete a fluid juice containing a ferment (*erepsin*) which has some power of digesting proteid food, but the exact value of this secretion is uncertain. Intestinal juice also serves to replace the fluid lost by absorption as the food passes along the bowel, so as to keep the contents fluid. It seems, however, that the pancreatic juice acts more energetically when it is mixed with intestinal secretion.* The bowel also contains an enormous number of micro-organisms (bacteria), which assist in breaking up certain forms of food-stuffs; thus in herbivorous animals the hard skeleton-matter of plants (cellulose) is digested by bacterial action.

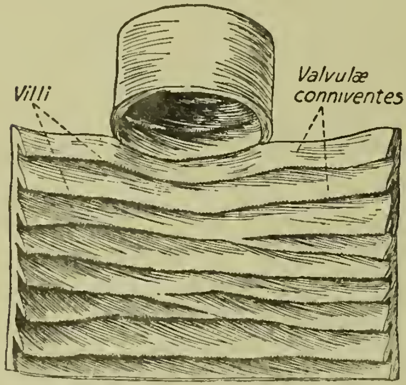

Fig. 19.—Folds of Mucous Membrane.

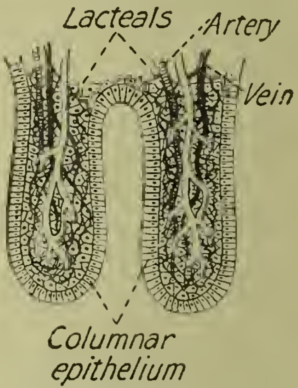

Fig. 20.—Villi.

Absorption.—The fluid food is passed along the intestine by the muscular action of the bowel-wall, a ring of contraction passing along it and pushing the contents forward. If the bowel be opened, the products of digestion may be seen spread in a thin layer over the whole of the lining membrane of the tube. The small intestine is some 25 feet long, and the area of internal surface is rendered more extensive by the mucous membrane being thrown into transverse folds, and also by its being covered with small projecting finger-like processes, set closely together like the pile of velvet (Fig. 19). These processes, called *villi*, are just visible with the naked eye. It has been calculated that if the whole surface thus available for absorption were laid out flat, it would cover about 12 square yards—the floor of a small room.

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* It is now generally believed that the pancreatic juice as it is secreted by the cells of the gland contains no active trypsin, but only a forerunner of this (*trypsinogen*), which is converted into trypsin by contact with a substance (*enterokinase*) formed by the intestine. The intestinal juice is capable of partly replacing the pancreatic if the latter is absent. It seems that secreting glands have some power of regulating their products in accordance with the work they are called upon to perform, ferments being formed in response to the presence of the substances which they are fitted to digest.

A *villus* is covered outside with columnar cells, which are capable of taking the soluble products of digestion into their substance and passing them inwards to the centre of the villus. Here is situated a central channel, communicating with a series of tubes called *lacteals* (*lacteus*, milky), and also a network of small blood-vessels (Fig. 20). By both of these the absorbed matters are carried away for the use of the body at large. Now, the small intestine is not like a mere coil of rubber-tubing lying free in the abdominal cavity, but is comparable with a coil of tube slung to the wall by a double fold of calico. In this fold, here formed of the transparent membrane called the peritoneum (Fig. 21), run lacteals and blood-vessels, passing backwards to the larger collecting channels which lie against the vertebral column. The blood-vessels are readily seen in the peritoneal fold (mesentery), while if an animal be killed just after a meal containing fat, the small lacteals are visible as white lines, formed by little vessels with milky contents. It appears that fat is mainly absorbed by these last channels, while the soluble products of proteid and carbohydrate food are carried off by the veins.

The *chyle* contained in the lacteals, which is seen under the microscope to consist mainly of droplets of fat, is carried to a central receptacle lying on the spine, and thence by a long duct (*thoracic duct*) to the left side of the neck, where it enters one of the large veins, and is thus distributed all over the body. The blood containing the digested proteids and carbohydrates is carried by the portal vein to the liver.

The liver.—The liver (Fig. 11, p. 213) is the largest gland in the body, and is formed of columns of large cells, richly supplied with blood, which reaches it both from the portal vein and also from a special artery, the hepatic. The secretion of the liver, analogous to the pancreatic juice or the saliva, is the bile, which has already been mentioned. Probably about 50 oz. of bile are excreted in 24 hours. The liver has, however, other very important functions besides forming this secretion. It acts upon both the proteid and the carbohydrate food brought to it by the portal vein.

The liver-cells have the property of taking the carbohydrate matter (sugar) brought to them from the intestine, and storing it up within them as a reserve for the future use of the body. The reserve material is laid up in the form of *glycogen* (*glycos*, sweetness), a substance closely allied to starch, the corresponding reserve material of the vegetable world. The glycogen is then gradually given up again to the blood in the form of sugar as it is needed as food for the cells of the body during periods of fasting.

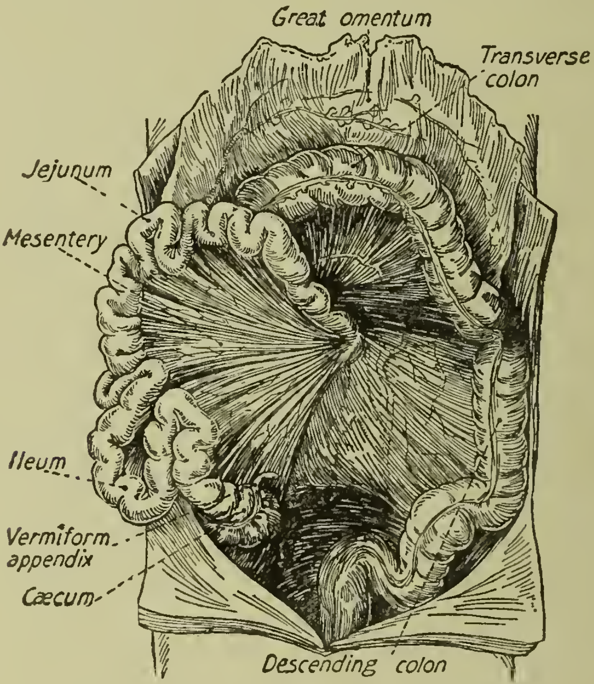

Fig. 21.—Intestine slung in Peritoneum.

The existence of glycogen is shown as follows:—A rabbit is given a full meal of carrots, and is then killed. The liver is quickly removed, cut into pieces, and thrown into boiling water. A milky solution of glycogen is thus obtained. If the liver be left for some time before being extracted, the glycogen disappears, and sugar is found in its place; it has been converted into sugar. This conversion is effected by means of a ferment contained in living cells.

The action of the liver in respect to proteid food is not fully understood. In a special disease, acute yellow atrophy of the liver, in which the liver is rapidly destroyed, it is found that the substance *urea*, representing the ultimate waste product of proteid food, disappears from the urine, and that other and more complicated bodies, *leucin* and *tyrosin*, take its place. This effect need not be discussed here.

The setting free of glycogen into the blood in the form of sugar is influenced by the nervous system; thus it is found that a prick with a needle at a particular point of the central nervous system produces so rapid a pouring out of sugar that some of it appears in the urine. It has been supposed that some forms of diabetes are produced by nervous action of this nature.

The **large intestine** has probably no part in the absorption of food, but the water which holds the products of digestion and renders the contents of the small intestine fluid is here absorbed, the solid waste products remaining behind, so that the lower part of the large bowel contains pulpy material. This constitutes the fæces, and consists of matter which resists the action of the digestive juices—seeds of fruit, stringy portions of vegetables, etc. If, owing to constipation, the fæces are retained within the large intestine for an undue length of time, putrefactive decomposition of these materials occurs, poisonous products are absorbed by the bowel, and illness results.

Balance of nutrition.—A steam-engine needs a certain amount of fuel if it is to do a given amount of work; and the body needs, similarly, a certain amount of food to enable it to live. The cells of which it consists are constantly undergoing that change which constitutes life—breaking down and giving off waste products, and then again building up fresh living matter from the food supplied by the blood. If, then, we can calculate the amount of waste products given off, we can estimate the quantity of food necessary to replace them.

Now, the main substances of which living matter consists are carbon, hydrogen, oxygen, and nitrogen. The oxygen is derived from the air in the process of breathing; carbon and hydrogen are contained in all the main varieties of food-materials, proteids, fats, and carbohydrates; but nitrogen is derived entirely from proteid food. The nitrogenous waste matter leaves the body almost entirely by the urine, and can be easily calculated. It is found that about 300 grains of nitrogen are excreted every 24 hours. In the same period about 9½ oz. of carbon are eliminated, chiefly in the form of carbonic acid gas, which is given off by the lungs. These quantities, therefore, have to be provided daily, if the body is to keep in health, neither gaining nor losing weight. They are calculated for an adult person: growing children will need larger amounts of food proportionately to their weight, as they must not only make up for what they lose, but also add to their bulk in growing. Old persons, in whom the vital processes are sluggish, need comparatively less food.

Now, although proteid food contains both nitrogen and carbon, yet there is no one kind of food which contains exactly the necessary proportions of the two elements: for example, one pound of lean meat would supply the nitrogen required, but not sufficient carbon; while the amount of bread containing 300 grains of nitrogen would supply about 14 oz. of carbon—an excessive amount. Hence, in order to obtain a diet which as nearly as possible supplies the amounts needed, mixed food is employed. The following diet has been suggested as approximately correct :—1 lb. bread, ½ lb. meat, ¼ lb. butter or fat, 1 lb. potatoes, ½ pint milk, 2 eggs, and 2 oz. cheese (Waller). This contains a little more than the minimum needed, but is roughly accurate. An ordinary hospital dietary contains much less than this, but it must be remembered that the above diet allows for the performance of a fair day's work, whereas hospital patients are often confined to bed, and in any case take no vigorous exercise.

Animal heat.—The heat of the body is derived from the food, just as the heat of an engine is derived from the fuel; and in each case it is produced by the chemical combination of some substance, chiefly carbon, with the oxygen of the air; only, in the engine this takes place directly, in the body indirectly through changes taking place in living cells. Production of heat in the body takes place chiefly in the muscles when they contract, and in the glands such as the liver. Heat is continually being given off from the surface of the body, just as it is from a can of hot water, and the body would quickly cool down to the temperature of the surrounding air if heat were not continually being produced inside it to make good the loss.

In health the production and loss of heat balance one another, and the balance is maintained by the action of the nervous system. Thus, if the body becomes too hot, the blood-vessels in the skin are dilated (flushed), and more heat is given off, as more blood passes through the cool surface-parts and gives up its heat. At the same time sweating is induced, and in the evaporation of the sweat more heat is abstracted from the blood. On the other hand, if the body becomes cold, the vessels in the skin are contracted (blanched), and the blood remains in the deeper and warmer parts of the body, while at the same time we are inclined to move the muscles briskly in order to produce more heat. Warm clothing, of course, diminishes the loss of heat from the surface of the body. On the other hand, a cold bath or sponging may be used to diminish the heat of the body. In fever the temperature of the body is raised, chiefly, in all probability, by increased production of heat owing to increased chemical change occurring in the tissues.

The average temperature of the healthy human body is said to be 98·4° F. if taken in the mouth or axilla. In the rectum, which represents the temperature of the deeper parts, it is about a degree higher. The temperature of the body is higher in the evening than in the morning, probably owing to the effects of muscular exercise; but the same variation occurs even in persons who are lying in bed. The highest point is reached about 6 p.m., and the lowest in the early morning—say, 2 a.m.

Of the different food-stuffs, fats are the most important as a source of heat. Thus, persons living in very cold climates (Greenland) subsist largely upon fats and oils, whereas tropical races take chiefly carbohydrates, which have little heating power. The fat which exists in different parts of the body, and which serves to some extent as packing for the organs, constitutes a reserve of fuel, which can be drawn upon when needed. Thus, animals which hibernate (sleep through the winter), such as dormice and bears, put on a thick layer of fat beforehand, and this supply is gradually used up while they sleep.

Starvation.—When an animal is starved it rapidly loses weight, and the fat is most largely diminished in amount, practically disappearing from the tissues. The other organs suffer in different degrees, those which are most important for the preservation of life, such as the brain and the heart, being least altered, whereas the muscles and glands become much wasted. Animals are able to exist for several weeks without food, if they are supplied with water; without water they die in a few days.

III.—EXCRETION

The skin.—The skin is the protective covering of the body, and consists of two layers—an inner elastic layer (*derma* or *corium*), formed of connective tissue and richly supplied with blood-vessels and nerves, and an outer layer (*epidermis*), consisting of special covering cells, adapted for contact with air and other outside influences. The epidermis is seen under the microscope (Fig. 22) to be many cells thick, the deeper strata of cells being soft and in a constant state of multiplication, whereby new cells are formed; while the outer cells become flattened, hard and dry, and are constantly being rubbed off or thrown off spontaneously (desquamation), their places being taken by new cells from below.

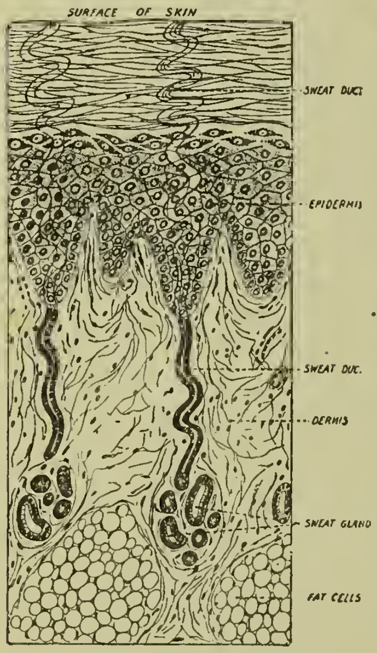

Fig. 22.—Section of Skin.

The skin is impervious to moisture, and prevents evaporation of the fluids of the body, as well as the entrance of water from without; it also acts as a protection against the entrance of germs of all kinds. In it are certain special structures, glands, and hair-follicles. A *hair-follicle* (Fig. 23) is a deep pit or depression in the skin, lined with epidermic cells, at the bottom of which is a group of special cells, which, by dividing and multiplying, give rise to hairs. Hairs thus grow entirely from their roots; the part which projects above the skin does not grow, and cannot be affected by oils and other applications used as washes, though these may tend to prevent it from becoming unduly brittle. Old hairs are constantly falling out, being pushed out of their follicles by new hairs forming beneath them.

On the inner wall of each hair-follicle is the orifice of a small gland (*sebaceous gland*), which secretes an oily fluid needed for the lubrication of the skin. There are also little *muscles* inserted into the outside of the follicles, which by their contraction tend to pull the hairs into a more erect position, causing them to "stand on end" in the condition known as "goose-skin," which may be induced by cold or by fright or horror.

Sweat-glands (Fig. 22) are also situated in the skin, lying in the deeper layer. They consist of coiled tubes, the ducts of which pass up through the epidermis and open on the surface. They secrete a watery fluid (sweat or perspiration) which contains only a little solid matter. Sweat is continually being given off imperceptibly, and when the secretion is increased it forms visible drops on the surface of the skin. Its chief use is to cool the surface of the body by its evaporation, just as the forehead is cooled by the application of an evaporating lotion. Flushing of the blood-vessels in the skin tends to increase the secretion of sweat, which is thus controlled by the nervous system; emotions such as fear or shame may produce sweating. Some drugs, such as pilocarpine, cause an increase of sweat (sudorifics); others, such as atropine, diminish it.

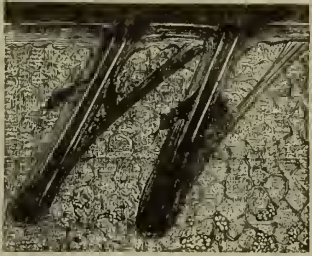

Fig. 23.—HAIRS AND SEBACEOUS GLANDS.

In the deeper layers of the epidermis is situated a quantity of dark pigment, which modifies the colour of the skin (complexion); thus there is comparatively little pigment in the skin of the white races (Europeans), and less in blonde than in dark persons; in yellow races there is more (Chinese, Japanese), and most of all in negroes. Underneath the skin almost all over the body is a layer of fat which serves to prevent direct loss of heat by radiation, as fat is a bad conductor of heat.

In some persons the openings of the follicles in the skin tend to become blocked with sebaceous secretion, forming what are known as "black-heads." These are readily invaded by bacteria, and inflammation is set up, the condition being then known as *acne.*

Although, as has just been stated, the skin has some excretory functions, since it is constantly giving off water as perspiration, and along with the water some solid matter, the two great organs of excretion in the human body are the lungs and the kidneys. The *lungs* give off the carbonic acid which is formed as the result of the burning in the body of the carbon of the food; this process will be considered under the heading of Respiration. The *kidneys* excrete the waste products which contain nitrogen ; they also eliminate many poisonous substances which are taken in with the food, as well as a certain quantity of salts—chlorides, phosphates, etc. Both lungs and kidneys excrete water. The bowel also excretes some waste matter, and some poisons are thrown out of the body by this route. Water, too, may be thrown out with the motions.

The kidneys.—We have now to consider the excretory action of the kidneys, and the composition of the urine which they excrete. Roughly speaking, the kidneys may be described as two filters, which allow certain portions of the blood to pass through them, and keep back the other constituents. The part which is kept back in health is the albuminous constituents of the blood, while water and salts pass through and form the urine.

Urine is a clear yellow fluid, slightly heavier than water ; if a certain volume of distilled water weighed 1,000 grains, a similar volume of urine would weigh about 1,025 grains. This is expressed by saying that the density (or specific gravity) of urine is 1,025 as compared with water, 1,000. The reaction of urine is acid, as shown by dipping into it a piece of blue litmus-paper, which is then turned red. The acidity of the urine differs at different times, being less after a meal containing vegetable matter, owing to the alkaline salts taken in with this kind of food, and greater during fasting or after a diet of meat. The yellow colour of the urine is due to pigment derived from the colouring matter of the blood. Its intensity varies according to the quantity of urine passed ; as, if there is scanty excretion, the colouring matter is concentrated, while if there is a copious flow it is correspondingly diluted. The average quantity of urine passed in 24 hours is 50 ounces (2½ pints).

The quantity excreted depends upon the amount of blood which flows through the kidneys ; consequently, in such conditions as heart-disease, in which the flow of blood is poor, the urine is scanty, while drugs which stimulate the heart's action increase the amount excreted. Another factor upon which the quantity of urine depends is the intake of fluid as drink, and the excretion of water by other channels. Copious draughts of water, milk, or other beverages will increase the flow of urine, while profuse sweating or the occurrence of diarrhœa will result in a diminution of the output. Cold weather, by checking the process of perspiration, causes an increase in the quantity of urine ; hot weather conversely produces a diminution. Certain substances, known as diuretics, cause an increased secretion of urine by acting on the cells of the kidney which constitute the filtering apparatus.

The most important substance contained in the urine is **urea**, a white crystalline substance, of which about 1 ounce is excreted in 24 hours. Nearly one-half of this weight is nitrogen; indeed, almost all the nitrogenous waste of the body leaves it in the form of urea, a few less important substances, such as creatinine (*creas*, flesh), making up the rest. As we have seen, in order that the balance of nutrition may be maintained, the nitrogen excreted must equal that taken in with the food, so that the quantity of urea excreted corresponds with the amount of nitrogenous food taken.

The exact manner of the formation of urea is not known. It may conceivably be formed in either of two ways: either by the direct breaking down of the proteid food, as in the process of digestion, the urea representing what remains when the tissues have assimilated all that they can; or by the tissues themselves as the result of their vital activity, the whole of the proteid food being first converted into living protoplasm, which then gives off urea just as it gives off carbonic acid. It seems generally believed that the former is the probable method: possibly the creatinine represents the actual waste of living cells.

The urea exists in the blood, and is simply filtered off by the kidneys; it is not formed by the kidneys from anything else. The chief seat of formation of urea appears to be the liver, as in the disease known as acute yellow atrophy of the liver, in which almost the whole substance of the organ may be destroyed, it is found that urea disappears from the urine, and other bodies take its place (leucin and tyrosin). It would seem, then, that the liver somehow converts these bodies into urea.

Urea can be manufactured artificially in the laboratory, and if it is administered as a drug to animals it is found to act as a diuretic. The activity of the kidneys thus varies with the quantity of substances present in the blood which they have to eliminate.

The total composition of urine is somewhat as follows:—

In every 1,000 parts of urine are contained, approximately:

960 parts of water,
20 parts of urea,
2 parts of creatinine and uric acid,
15 of salts (chlorides, sulphates, phosphates),
3 of mucus, pigments, etc.

The **uric acid** is present in combination with sodium and potassium in the form of salts called **urates**, but under some circumstances, especially when the urine is very acid, uric acid itself is precipitated in the form of crystals, which are visible to the naked eye as small red grains, like Cayenne pepper, lying at the bottom of the "specimen glass." Uric acid is probably formed from the nuclei of cells—partly from the cell-nuclei contained in food, partly by the breaking down of the living nuclei in the body.

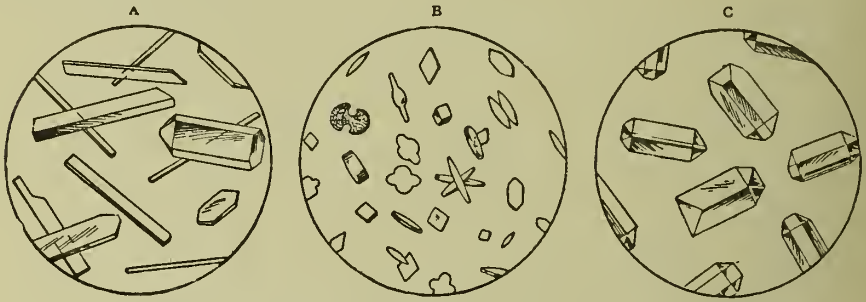

Fig. 24.—A, Urea Crystals; B, Uric Acid Crystals; C, Triple Phosphates.

The urates contained in normal urine are held in solution by the water, and if the urine becomes concentrated they are liable to be precipitated and to form a deposit in the specimen glass. This deposit is generally whitish in colour, but in very concentrated urine, as in cases of heart-disease, the urates may take up some of the pigment present and form a bright-pink sediment. Since hot water holds in solution more urates and other salts than cold, it often happens that a deposit forms in urine when it is allowed to stand in a vessel and to get cold. Such deposits are not often of any significance; they do not indicate disease. If, however, the urine is turbid at the time it is passed, some abnormality is generally to be inferred. A deposit of urates is readily dissolved on heating the urine containing it.

Another white deposit which may form in urine is composed of **phosphates**—salts containing phosphorus. These are usually precipitated in alkaline urine, as they are very soluble in acids. The addition of a strong alkali, such as caustic potash, will produce a precipitate of phosphates in normal urine. Urine quickly becomes alkaline when kept exposed to the air, owing to decomposition of the urea present into ammonium carbonate by the action of bacteria (*Micrococcus ureæ*).

The ammonia thus liberated enters into the composition of a form of phosphate (triple phosphate) which crystallises in large prisms like the glass "drops" which used to hang from old-fashioned chandeliers. Bacteria flourish best in warmth, and hence the decomposition of urine is most frequently noticeable in the summer. Infection is easily carried by the urine-glasses, and it is often found that all the specimens of urine in a hospital ward may rapidly become offensive at such times. Sometimes decomposition of the urine may occur within the bladder owing to infection being conveyed on a catheter, and such a condition is of serious import.

If urine containing much phosphate is heated to boiling, a cloudy precipitate of altered phosphates is produced ; this disappears on addition of a drop or two of acid (acetic or nitric). This reaction is of importance, as the precipitate is liable to be confused with albumen, and thus to cause mistakes in diagnosis ; but the precipitate formed by coagulated albumen does not disappear on addition of acid—it may even become denser.

Albumen and sugar do not occur in recognisable amounts in normal urine ; their presence usually indicates disease. It is probable, however, that a certain amount of albumen may occur in the urine of young adults, especially after exertion, without being of dangerous import.

If we take as the simplest form of filter a glass funnel lined with blotting-paper and connected with a long rubber tube, we may look on the kidneys as consisting of an immense number of such filters set side by side, the tube of one communicating with that of others, like tributaries of a stream, to form larger and larger collecting channels. The actual minute structure of the kidney is shown in Fig. 25. Here the funnel is represented by the cup-shaped end of the tube, into which is inserted a coil of capillary blood-vessels. Filtration takes place through the thin membrane separating the blood from the cup, and water passes out in this way. The coil of capillaries and the cup together constitute what is called a glomerulus (little bundle). But the tubules of the kidney are not simple collecting pipes, comparable with rubber or glass tubes ; they are formed of active living cells which line the loop shown in the figure. These cells secrete the urea and other salts of the urine, much as the pancreas, for example, secretes its digestive juice. The excretion of urine is thus not a simple process of filtration, like that through porous paper ; for, if that were the case, the urine would have the same constitution as the blood, the liquid passing through a filter unchanged. But the urine differs from the blood, not only in that the albuminous parts of this are left behind, but also in the quantity of urea which it contains; for whereas blood contains only a minute trace of urea, perhaps 2 parts in 10,000, the urine contains 2 parts in every 100, or 100 times as much. The kidney-cells therefore have the power of picking the urea out of the blood, and leaving other constituents behind. If the cells of the kidney are damaged by disease they cannot do their work properly, and they allow albumen to exude into the urine, while they fail to eliminate a due amount of urea.

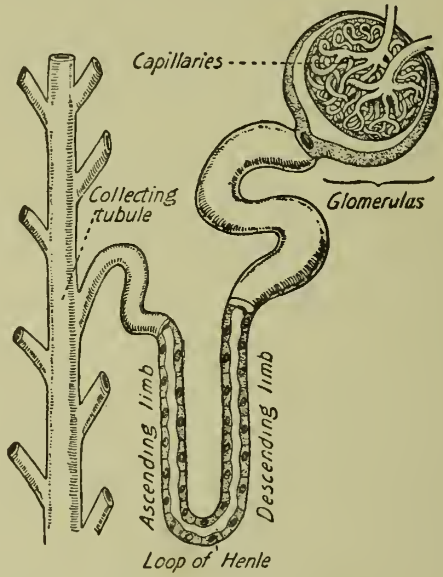

Fig. 25.—Minute Anatomy of Kidney.

Any unusual soluble substances which may circulate in the blood are excreted in the urine. Thus *sugar* may exist in considerable quantities in the blood in some circumstances, as after a meal containing a very large amount of this substance. It is then filtered off, and appears in the urine (*glycosuria*). The most marked instance of this condition is in the disease called diabetes. Salts, such as potassium iodide, given as medicines, appear in the urine, and many poisons, such as arsenic, lead morphine, strychnine, and carbolic acid, are thus passed out of the body. If the kidneys are diseased, a much smaller quantity of poison will prove fatal than if the power of excretion is unimpaired.

Passage of urine.—The urine from the tubules flows first into the pelvis of the kidney (Fig. 26), and thence into the ureter of that side. It is secreted by the kidney under considerable pressure, so that if any obstruction exists in the ureter the part of that tube above the block becomes distended, and if the obstruction persists the pelvis of the kidney also becomes dilated, and finally even the secreting part may be thinned and blown out into a large sac (hydronephrosis). The ureters open into the bladder (Fig. 12, p. 217), the lower end of these tubes running for a little distance in the wall of the bladder, so that a sort of valve is formed, preventing the possibility of the urine finding its way from the bladder back into the ureter.

The **bladder** is a muscular bag, with a structure very similar to that of the stomach, as it has muscular walls capable of exerting pressure on its contents and forcing them onwards, and also a ring of muscle, or sphincter, at the lower opening, which prevents the contents from escaping except at the proper time. Both the muscle of the bladder-wall and also the sphincter are under the control of the nervous system, nerves passing to them from the lower part (lumbar enlargement) of

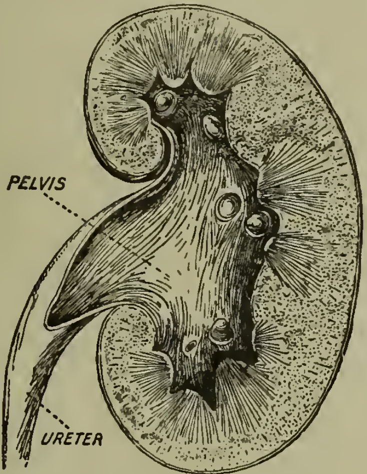

Fig. 26.—Section of Kidney.

the spinal cord. When the bladder becomes full, a message is carried to the spinal cord, and thence to the brain, where the sensation of a desire to pass water is excited. A motor impulse is then sent down to the muscles of the bladder, causing a contraction of the muscular wall and a simultaneous relaxation of the sphincter. Urine is thus expelled into the urethra, and so out of the body. The bladder-wall then relaxes again, and the sphincter contracts, so that more urine can accumulate. In the act of micturition the muscles of the abdominal wall are brought into play, to exert pressure upon the outside of the bladder and aid the walls of it to expel its contents.

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